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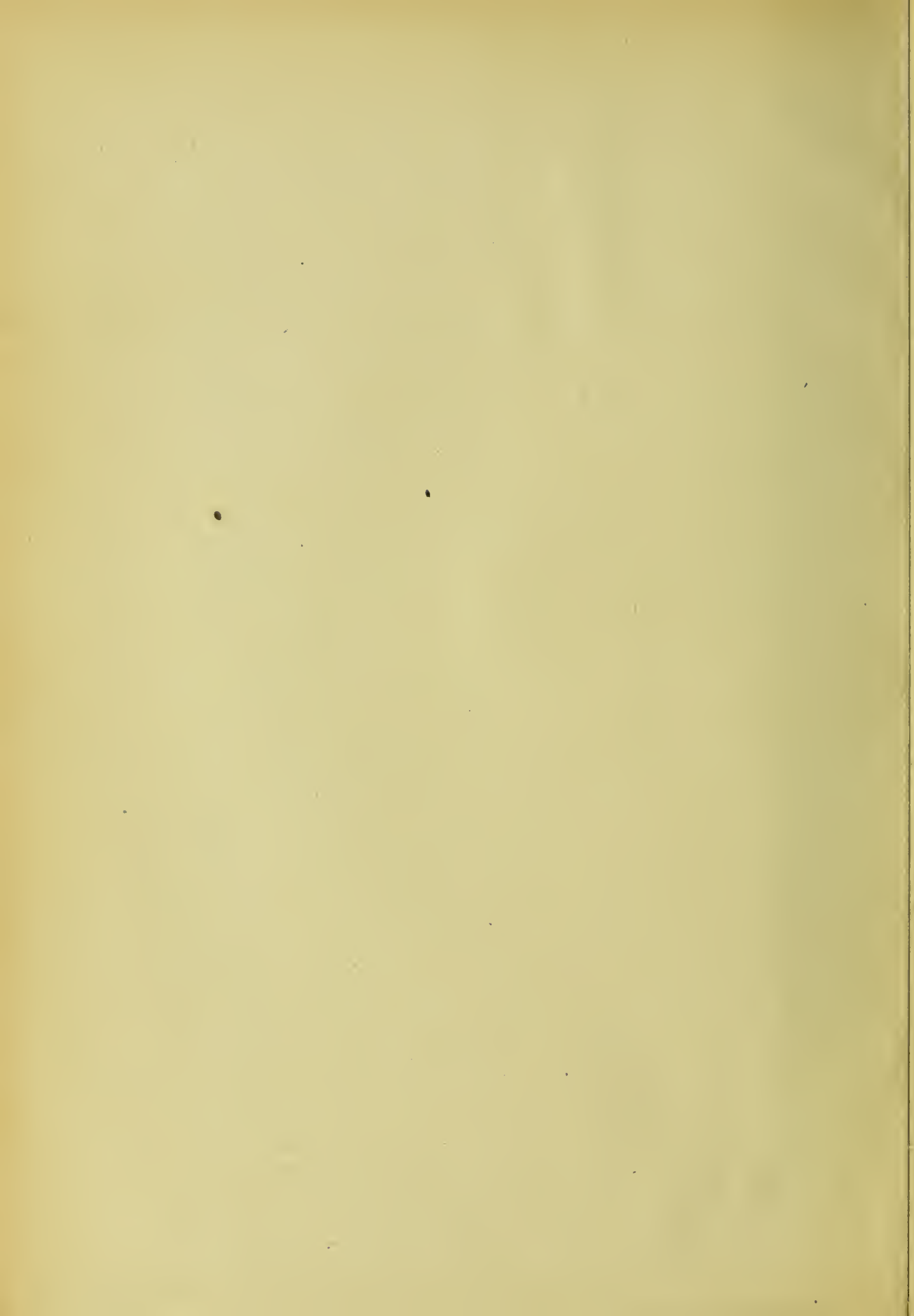


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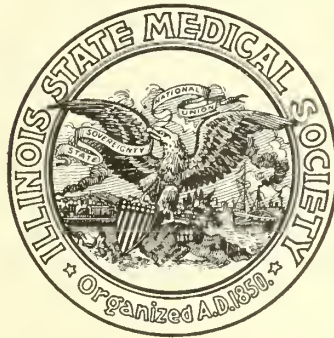
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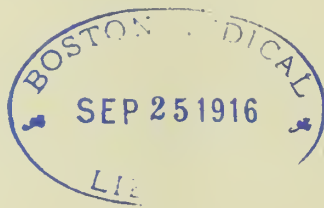
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INDEX TO VOLUME XXIX

JANUARY TO JUNE, 1916



INDEX TO VOLUME XXIX

January to June, 1916

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the names of papers

read, officers elected, etc., can be located in the proceedings under Societies. Editorials, News of the State, Marriages, Deaths, Public Health Items are classified under these headings. The subjects of editorials also appear alphabetically and are marked (E).

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CLINICAL SYMPTOMS AND PHYSICAL SIGNS IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS: A DIS- CUSSION FROM THE STANDPOINT OF THEIR ETIOLOGY AND THEIR RELATIONSHIP TO EACH OTHER.*

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MONROVIA, CAL.

Mr. President, Ladies and Gentlemen: I wish to thank your worthy president for the privilege and honor of addressing the members of the Robert Koch Society today. I have chosen as my theme the clinical symptoms and physical signs in the early diagnosis of tuberculosis and shall discuss them from the standpoint of their etiology and their relationship to one another.

In studying the clinical history and symptom-complex of pulmonary tuberculosis, every one must have been more or less impressed with the indefiniteness of the symptoms and signs connected with this disease. It is my purpose today to try and bring some order out of this chaos.

There are some twenty-five or thirty different symptoms which accompany early tuberculosis, and even more in advanced tuberculosis; and, if we think of each symptom as an individual entity, there is no end of confusion. By carefully studying these various symptoms I have found that they all belong to three groups, according to their etiology, and I offer this classification to you today. I published this first some two years ago¹ but I can even see more clearly than I did at that time, the great value of this etiological study, and I trust that this classification may be

of great value to you who are working so closely in the early diagnosis of this disease.

The classification which I offer is as follows: 1, those due to toxemia; 2, those due to reflex action; and, 3, those due to the tuberculous process *per se*:

Group 1.—Toxemia.

Malaise
Lack of endurance
Loss of strength
Lack of appetite
Nervous instability
Digestive disturbances
Loss of weight
Rapid pulse
Night sweats
Temperature
Anemia.

Group 2.—Reflex Origin.

Hoarseness
Tickling in larynx
Cough
Digestive disturbances
Loss of weight
Circulatory disturbances
Chest and shoulder pains
Flushing of face
Apparent anemia.

Group 3.—Tuberculous Involvement *per se*

Frequent and protracted colds
Spitting of blood
Pleurisy
Sputum
Temperature.

It is characteristic of the symptoms of early tuberculosis that they are inconstant. We do not find any single symptom or any particular group of symptoms present under all circumstances. The explanation of this fact is plain when we study the symptoms according to their respective groupings.

The symptoms which are best known fall in group 1—those due to toxemia. It will be noticed

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that these are wide spread in their expression, involving many different organs and parts. Aside from the anemia and rise of temperature, these all point to a disturbance on the part of the sympathetic nervous system. Further observation will show that this group of symptoms is present only under three conditions; first, during periods when the disease is definitely active and toxins are being thrown into the blood stream; and, second, when the disease is not particularly active but auto-inoculation is causing toxemia to be kept up by over-exertion, wrong habits of living; and, when the sympathetic nervous system is stimulated by certain depressive emotional states, as discouragement and anxiety, brought on by the disease.

The fact that the symptoms due to toxemia may be caused by any toxic condition whether it be a tonsillar focus or a general intestinal toxemia, or toxins from an acute infectious disease, show that these symptoms of themselves cannot be relied upon in diagnosis and are only of value when considered in connection with other symptoms and signs. The further fact that distinctly active conditions in tuberculosis are not constant until the disease reaches a state which is rather widespread, shows that this group of symptoms cannot be relied upon for diagnosis.

In order to have a clear conception of the symptoms which attend early tuberculosis, we must conceive of it as being a chronic inflammatory condition caused by irritation due to bacilli implanted in the tissues and toxins liberated by them. We must further consider that this chronic inflammation remains in a semi-quiescent condition over prolonged periods of time and that only now and then do bacilli in some particular focus take upon themselves increased activity, multiply, cause necrosis, caseation of the tissues, and produce the general toxic symptoms which are recognized in diagnosis. The disease process is present just the same, however, as when the acute toxic symptoms are prominent. With this understanding of the pathology we can understand how unreliable symptoms in Group 1 are. Fortunately, however, these symptoms are rarely found alone and even when they have passed away some of the symptoms of the other groups, together with certain physical signs remain.

The particular characteristic of the symptoms

in Group 2 is that they all point to organs and parts other than the lungs; but to organs and parts which are related to the lungs in their nerve supply. The lungs are innervated by the sympathetic and vagus branches of the autonomic nervous system, and an irritation producing inflammation in one branch of these systems is apt to express itself in reflex action in other branches of the same system; consequently, inflammation in the lung sends impulses centrally, which manifest themselves in reflex action in other organs and parts connected centrally with the fibres which supply the lung. In this way all symptoms found in Group 2 may be explained; thus, for example, hoarseness, tickling in the larynx, and cough are reflex through the pulmonary branches of the vagus and superior and inferior laryngeal nerves. The hoarseness may be due to reflex irritation of either the superior or inferior laryngeal nerve. When due to the superior laryngeal nerve the picture in the larynx is that of a relaxed cord. The superior laryngeal nerve furnishes sensation to the larynx and motor power to the crico-thyroid muscle, the contraction of which increases the tension of the cord. When this is irritated reflexly we note a general relaxation and interference with normal approximation, particularly of the central portions of the cords. When hoarseness is due to interference with the recurrent laryngeal, it shows itself often as an adductor paralysis, the cord of the affected side failing to approximate its fellow on the other side. Tickling in the larynx is a sensory reflex through the superior laryngeal. The tickling in the larynx is the sensory impulse which precedes cough. Indigestion and loss of weight and reflex symptoms on the part of the gastro-intestinal tract are varied. They depend considerably upon the individual. There are individuals as shown by Eppinger and Hesz² who naturally have an increased vagus tonus. There are others in whom the sympathetic tonus seems to predominate. The nature of the reflex symptoms on the part of the digestive tract in tuberculosis will depend considerably on the individual's relative vagus and sympathetic tonus. Here we have the inflammation in the lung sending impulses reflexly to the gastro-intestinal tract through both the vagus and the sympathetic. If the vagus tonus predominates, and it seems to do so in early tuberculosis for the most part, when the patient

is not toxic, he may have even a better appetite than normal. There also may be an ample supply of gastric and intestinal juices and the motility of the gastro-intestinal tract may be above normal. In fact, these patients often suffer from hyperchlorhydria and spastic constipation. On the other hand, if the sympathetic tonus is greater, these patients suffer from lack of appetite, deficiency of gastro-intestinal juices, a diminution of motility, a stasis of the intestinal contents and rapid heart action. Disturbances on the part of the heart follow the same line as just mentioned in connection with the reflex in the gastro-intestinal tract. In those patients in whom the vagus reflex predominates we may see, when the patient is at rest and free from toxemia or general sympathetic disturbances, a pulse rate normal, or even below normal. Owing to the fact that the equilibrium of the pulse is disturbed by reflex action through both the sympathetic and vagus, the pulse is decidedly unstable. While it may be normal, or below normal, while at rest, upon exertion it may become rapid; and, in fact, more rapid than would occur under normal conditions, and the normal is apt to be restored more slowly than in an individual who does not have this double reflex irritation. Where the sympathetic tonus predominates, the pulse rate is higher than normal. Thus, it can be seen that a rapid pulse must not be expected under all conditions in early tuberculosis. Instability is the factor—not rapidity. In observing many tuberculous patients, both in early and chronic quiescent or semi-quiescent tuberculosis, I have found a pulse rate in the sixties to be very common in that type where we would suspect a general increased vagus tonus from other symptoms.

Chest and shoulder pains which appear in tuberculosis are of reflex character and due to two distinct causes. First, we have the reflex sensory manifestations which appear for the most part in the third and fourth cervical, and the fourth dorsal zones. Reflex sensory pains in tuberculosis express themselves, for the most part, in the shoulder region, about the third interspace anteriorly, and in the region of the scapulae. There is also another pain of reflex origin involving certain motor branches of the cervical nerves. This shows itself as an aching of the shoulders; and in some instances, in advanced tuberculosis, I have seen a definite inflammation of the brachial plexus resulting from this irritation.

Flushing of the face is a dilatation of the capillaries of the head and face produced reflexly through the stimulation of the sympathetic fibres which are given off from the second to fourth thoracic segments of the cord.

It might seem strange to speak of apparent anemia as being a symptom of pulmonary tuberculosis, but it has long been observed that many patients who suffer from early pulmonary tuberculosis appear pale but do not show the expected blood changes on examination. The tuberculous patient is like the patient of general enteroptotic build. He has a disturbance in the inspiratory act due, however, to a different cause from that of the ptotic individual. The ptotic individual has a naturally deficient action of the diaphragm and consequently a deficient inspiratory act. The tuberculous patient may have normally a full inspiratory act, or, he may be of the ptotic build and have a natural deficiency; but, aside from his condition in health, when he has an inflammation in the lung, there is a motor disturbance of the muscles of inspiration including the diaphragm which lessens the inspiratory act.

The diaphragm is the chief muscle of respiration. It receives its innervation through the phrenics which are given off from the third and fourth, and occasionally from the fourth and fifth cervical segments. These segments of the cord are in direct communication reflexly, through the rami communicantes, with the sympathetics which supply the lung; consequently we have motor disturbances in the diaphragm as well as in the other muscles of inspiration, which results in a deficient action and limited motion of the side of the chest involved. Inasmuch as the inspiratory act is one of the chief factors in pumping the blood from the systemic veins to the right heart, we have an interference with this important function, consequently have less blood delivered to the right heart, and the heart has less blood to deliver to the arteries. The heart itself accustoms itself to a smaller content of blood and becomes smaller than normal as suggested by me in a former paper.³ Resulting from these factors we have a disturbance in the general circulatory equilibrium and a relatively smaller amount of blood in the arteries, giving us a relative arterial anemia and a relatively large amount of blood stored up in the systemic veins,

particularly the splanchnics, giving us venous congestion.

In early tuberculosis the congestion does not manifest itself so much because the vessels are capable of a considerable amount of compensation; but, in late tuberculosis, this becomes quite evident. It will thus be seen that the symptoms of Group 2 of reflex origin, are much like the symptoms of Group 1, which are due to toxemia, in that they are not distinctive of pulmonary tuberculosis. They do not point directly to the lung. Those in Group 1 point to a general sympathetic discharge, involving a great number of organs supplied by this system. Those in Group 2 point to individual organs or parts which are bound reflexly with branches of the sympathetic and vagus nerves, and produce symptoms indicative of some particular organ in which now vagus tonus and again sympathetic tonus predominates.

The first group of symptoms is only present during toxemia or during depressive emotional states in this disease, which are manifested by fear, anxiety and discouragement; while the others may be present as long as the inflammation in the lung is not thoroughly quiescent—as long as irritation of either the sympathetic or vagus nerve endings in the lung may exist. Those of Group 1 are most prominent during attacks of acute inflammation and are kept up by wrong methods of living, and the depressive emotional states. They are also widespread, involving a great portion, if not all, of the organs supplied by the sympathetic nervous system.

Those symptoms of Group 2, however, are extremely variable. The reflex may express itself in one organ for a time, then in another organ and so on; but some of the symptoms belonging to this group are nearly always present. That the factor which is responsible for these reflex symptoms is present over long periods of time may be inferred from the persistence of such reflex signs as we note in the muscles. In early tuberculosis the neck and chest muscles which are involved in the reflex show this increased tonus continuously until healing occurs. We must assume that the reflex impulses which produce manifestations on the part of other organs are also continuous, but that, at times, the equilibrium is maintained and dysfunction does not appear.

If we take up the symptoms in Group 3 it will

be noticed at once that these differ from Group 1 and 2 in one important particular. With the exception of temperature, they all point to the lung. When we have sufficient inflammation in the lung to produce a tuberculous bronchitis, it manifests itself, as a rule, in a cough which is not unlike acute bronchitis and hangs on for an uncertain time. In cold weather a bronchitis that hangs on for several weeks, or any bronchitis which is repeated at intervals, should be considered as suspicious. A bronchitis of this kind has nearly always associated with it the symptoms in Group 1 and some of the symptoms in Group 2. This should be sufficient, if properly correlated, to make the diagnosis of pulmonary tuberculosis extremely probable. These attacks of tuberculous bronchitis may not come often. They are like the exacerbations which produce toxic symptoms in this particular. They may be months apart, and sometimes years. Sometimes they show only as winter coughs, which continue winter after winter until a definite advanced tuberculosis manifests itself.

Spitting of blood may come on suddenly without any other symptoms being present. This occurs when bleeding is due to the rupture of a small vessel caused by an old quiescent focus of small dimensions. Under such conditions, however, if there is an extension of the disease following the spitting of blood, it will probably be followed by some of the symptoms in Group 2; and others in Group 1 will appear. The same may be said if symptoms of activity accompany the hemorrhage. The spitting of blood should always be considered as tuberculous unless some other cause can be definitely proven.

Pleurisy has a definite meaning. In a very large percentage of cases it is tuberculous. It further is evidence of an active tuberculosis. The profession must learn that tuberculosis of the pleura is as serious as tuberculosis of any other organ, with the exception that it is usually limited in extent and, if properly regarded, offers the patient a chance for cure. Tuberculous pleurisy is a metastasis from some other focus in the body which must be active or the metastasis could not occur; consequently *it should be treated seriously*. If the fact that there is an involvement in the pleura is not of sufficient consequence in the mind of the practitioner; that other fact, that this is an extension from some other focus which is

active or the extension could not occur, should be of sufficient consequence to cause this symptom to be treated seriously. This symptom itself should make a diagnosis unless it can be definitely proven that the pleurisy is due to some other cause. This applies to dry pleurisy, the same as to pleurisy with effusion. Symptoms of the other groups may not be present if the pleurisy is only of mild degree and limited in its extent. As a rule, however, symptoms in Group 1 will manifest themselves during this time and some of those in Group 2.

While sputum is not an early sign in tuberculosis, yet it is often present much earlier than we anticipate. Whenever the pathological process in the lung is sufficiently extensive and sufficiently virulent to cause an exudation in the tissues, there may be a slight amount of sputum present. At first this may be only mucus, but sooner or later, necrosis and caseation of small tubercles occur and bacilli may be found. Sputum should always be examined regardless of the patient's opinion as to its nature. It is not sufficient for the patient to say that he has no expectoration. Give the patient suffering from early tuberculosis a bottle and require him to bring for examination all the sputum raised in twenty-four hours, forty-eight hours or even seventy-two hours. This sputum should be treated not only according to the ordinary methods of examination, but either by anti-formin or by fermentation and shaking. If this careful procedure is followed one will be surprised by often finding bacilli where unsuspected. The danger of basing a diagnosis upon the examination of a single sample of sputum in a patient with early tuberculosis can be understood if we realize that while the patient may expectorate six or eight times a day, he might not expectorate bacilli more than once in the entire twenty-four hours, or once in two or three days. The examination of a sample, unless bacilli are found, is worthless.

Where bacilli are not found the lymphocyte content should be noted. In tuberculous sputum there is often a high lymphocyte count. If 40 or 50 per cent. of lymphocytes should be found, it should be considered as suspicious. When lymphocytic or bacillary sputum is found some of the other symptoms are nearly always present.

A continued temperature was formerly thought to be tuberculous. This is not necessarily true.

Any toxemia will produce temperature. Any inflammation will produce temperature and now that we know that infectious foci may be found in other parts of the body we must be very guarded in interpreting a slight rise of temperature as being due to tuberculosis.

Temperature must have other signs and symptoms accompanying it. Temperature in tuberculosis is extremely variable. It depends a great deal on whether the patient is at rest or active. The inflammation in tuberculosis is not constant, but goes in waves. There are waves of activity when the temperature will be a little higher than normal and waves of quiescence when it will be normal. No temperature curve in suspected tuberculosis is of any diagnostic value unless it extends over a period of several weeks. The temperature accompanying the menstrual period in women must be understood. For some time, anywhere from a few days to two weeks prior to the period time, the temperature is, as a rule, higher than the two weeks following the onset of the menses. It is not uncommon to find a temperature running from 98 degrees to 98.6 degrees for the two weeks following the period and running from 98.4 to 99 degrees during the two weeks preceding the period. This, however, shows great variation. Premenstrual rises may only appear a day or two before the onset of the period. In some women it is even slightly lower, but the period is followed by several days' rise.

We can see from the above discussion of the symptoms in tuberculosis that if they are properly analyzed, they give us diagnostic evidence; if not, they are confusing. By bearing in mind that they are produced by three different forces—toxemia, reflex action and the tuberculous process itself, we can understand them better and analyze them to greater advantage than we have been able to do with our hitherto indefinite ideas of their causation.

Now, if we take up the question of the physical signs, we shall see how intimately they are associated with the symptoms. For example, we often see a dilatation of the pupil on the side of the involvement. This dilatation of the pupil is inconstant. Some observers have reported that they have found it in about fifty per cent. of cases. It must be remembered that this was probably on a single examination of each patient, not a continuous observation. The pupil is in-

nervated by both the vagus and sympathetic fibres; the vagus has a tendency to contract—the sympathetic to dilate; consequently the equilibrium is disturbed. At times the patient may have a contracted pupil; again, he may have a normal pupil; and, still again, a dilated pupil. Dilatation of the pupil is extremely common if we observe patients repeatedly during various portions of the day over long periods of time. When we find dilatation of the pupil on one side, or abnormal dilatation on both sides, we think at once of reflex disturbance from the lung.

Other very important physical signs which I have described are those of motor and trophic disturbances in the muscles, subcutaneous tissue and skin over the chest. These disturbances in the skeletal muscles, subcutaneous tissue and skin overlying them, are due to reflex action.

The inflammation in the lung sends afferent impulses through the sympathetic and the rami communicantes to the cervical segments of the cord where they transfer their irritation to the cell bodies which give origin to filaments of the cervical nerves. This being the portion of the cord which provides motor, sensory, and trophic impulses for the superficial muscles of the neck and upper chest and the skin and subcutaneous tissue overlying them, also motor and trophic impulses for the diaphragm, we find an expression of the reflex in functional and structural changes in these structures.

In the case of the sterno-cleido-mastoideus and trapezius muscles we also have another reflex through the filaments of the *accessorius* running in the vagus. The reflexes manifested by these structures give us extremely important signs by which we may interpret the pathology within the chest. During periods of active inflammation in the lung and as long as the involvement in the lung has not healed, nerve endings are irritated, impulses travel centrally and continue their reflex irritation of nerve fibres which supply these superficial tissues. Consequently we have, in the presence of early active inflammation in the lung, a motor reflex manifesting itself in the superficial muscles as an increased tone (spasm). In the diaphragm it shows as altered motion. This increased tone in the superficial muscles may be determined sometimes on sight, but particularly on palpation. The muscles are firmer than normal; the individual fibres seem to have a definitely increased tone.

It is shown in the diaphragm as limited motion of the side. Another element, of course, comes in to produce this sign—decreased elasticity of the pulmonary tissue itself. That this limited motion of the side can be caused by reflex disturbance on the part of the muscles of inspiration can be proven, however, by the fact that a very small lesion in the apex, where there is not sufficient disturbance on the part of the pulmonary elasticity to produce any appreciable effect, will be accompanied by limited motion.

When the disease has persisted for a long period of time, as it does in advanced tuberculosis, we have a reflex trophic disturbance in all the parts innervated—the muscles, subcutaneous tissue and skin. The muscles also suffer a degeneration from the fact that they are kept in constant tonus for a prolonged period (overwork atrophy); consequently, when we find a distinct degeneration of the muscles, subcutaneous tissue and the skin limited to the tissues covering one apex, or both apices, we should at once think of reflex action as being the etiological factor. When an inflammation has existed in the lung for a prolonged period of time as tuberculous infiltrations do, the skin is usually thinner than normal, the subcutaneous tissue is wasted, and when picked up between the thumb and finger, shows a diminution and distinct atrophy as compared with that over the other apex or over other parts of the chest wall. The muscles degenerate and present certain definite changes. They lose their elasticity and appear to the palpating finger more or less doughy. The bundles also are more easily detected than in normal muscles and give the impression of being stringy.

The importance of this localized atrophy, as indicating chronic inflammation in the lung, cannot be overestimated. If activity is also present; then, aside from the atrophy, a tendency for the muscles to show increased tonus may also be detected when carefully examined, although the general muscle tone is so low from the degeneration that this may be difficult to detect.

The diaphragm reflex may be detected as a limited motion of the side by either inspection or palpation. We sometimes find difficulty in distinguishing the motor and trophic disturbance in the muscles which are produced by reflex irritation from that produced by occupation. We have certain definite criteria, however, which will

aid us if we find increased tone of the muscles confined to one side, particularly the right side, in men who do heavy work. If this is due to occupation it is not so apt to involve the sterno-cleido-mastoideus as other muscles and will not involve the diaphragm; consequently, if we find increased tonus of the muscles, which would show this change by occupation, and also find the diaphragm reflex—lagging of the side—and increased tonus in the sterno-cleido-mastoideus, we should suspect it to be due to reflex action produced by inflammation in the lung. It will also be noted that there is some atrophy of the muscles on the right side of most chests due to occupational influences. Sometimes it is extremely confusing to tell whether this is wholly occupational or whether part of it is reflex as well. There are certain signs, however, which also aid in this dilemma. I would call attention to the fact that the sterno-cleido-mastoideus rarely degenerates from overwork. Nor does the subcutaneous tissue; consequently, if we find a degeneration of the sterno-cleido-mastoideus along with the other muscles and also find the subcutaneous tissue overlying the muscles atrophied, then we are justified in suspecting a degeneration due to pathological changes within the lung.

It is important to note that these reflexes are bound up and closely associated with the reflex symptoms found in Group 2. They are also accentuated at times when those symptoms in Group 1 are most prominent.

Physical signs which have long been employed in the diagnosis of intrapulmonary conditions are the lagging of the chest wall and the changes on percussion and auscultation. Lagging of the chest wall, as previously mentioned, is due to both reflex motor disturbances in the muscles of inspiration and lessened elasticity in the pulmonary tissue. To be sure, it is also produced by acute pleurisy and pleural adhesions, but this, as a rule, does not have so much to do with early tuberculosis.

The changes on percussion and auscultation are usually considered to be due wholly to a tuberculous process in the lung, but this is untrue. Some of our greatest errors and some of the things which have disturbed us most, in diagnosis, have been due to this assumption. A moment's thought will prove that we cannot neglect the influence of the superficial tissues on

percussion and auscultation. When we see, as I have previously described, how these are altered in the presence of activity and chronic inflammation in the lung, it can readily be seen that this influence must be taken into consideration in interpreting our signs on percussion and auscultation depends not only upon the involvement in the acter of the sound emitted by the percussion blow depends not only upon the involvement in the lung, but the involvement in the lung, plus the soft parts, bony thorax and all other conditions present in the chest; consequently, if, through a chronic inflammation, we have a degeneration which amounts to a wasting of any considerable portion of the soft tissues, this must be taken into consideration in our percussion findings. It is not at all uncommon to find one-third of the soft tissues covering an apex wasted through the reflex trophic disturbances caused by the chronic inflammation in the underlying lung. It would be necessary to have a very dense infiltration in that apex in order to make the percussion note equal in pitch to that on the normal side; or make the finger resistance equal to that on the normal side. The percussion note and resistance to the finger also depend on the tone of the muscle. If, as in early tuberculosis, we have an increased tonicity of the muscle, this, of itself, gives a higher pitched note and increased resistance as compared with the normal muscle; and a normal muscle will give higher pitch and increased resistance to the finger as compared with the degenerated muscle. I doubt not that every man who examines chests has been annoyed and perplexed very often because of his failure to recognize the effect of the soft tissues. It is impossible to compare the percussion findings in two parts of the chest or over symmetrical portions of the two lungs, without first taking into consideration the relative thickness and relative tonicity of the muscles and soft tissues over the different parts. This is extremely important in early tuberculosis.

One can readily understand how the auscultation findings are also influenced by the condition of the muscles. If one will listen over a degenerated muscle or a relaxed muscle, and then over the same muscle when in a state of tonicity, he will see that an impediment has been placed in the way of the conduction of sound through the muscles when in increased tone. He will also see that the sounds are higher pitched over muscles

with increased tone when compared with the normal.

To sum up, we can now understand that all the symptoms of tuberculosis are an expression of toxemia, reflex action, or of the disease process itself. The physical signs which accompany tuberculosis are also due to reflex action, and the tuberculous process itself. We can also see that the interpretation of the data obtained by the usual methods of examination, inspection, palpation, percussion and auscultation, cannot be correct unless we take into consideration not only the pathological process within the lung, but the changes which have occurred in all soft tissues covering the thorax. To be more exact, we must take into consideration the soft structures, the bony thorax, the infiltration in the lung and all other conditions which surround it.

In conclusion I trust that this analysis of the clinical symptoms and physical signs of tuberculosis may prove as valuable to you in your work as it has to me in mine, and I further trust that it may give you a clearer insight into this complex disease, and thus aid in the making of early diagnosis.

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THE INTRAVENOUS USE OF TYPHOID VACCINE AND FOREIGN PROTEIN IN THE TREATMENT OF TYPHOID FEVER.*

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The vaccine treatment of typhoid was first used by Fraenkel in 1893. He treated fifty-seven patients with vaccine prepared by growing the bacillus on thymus bouillon, killing at 63° C., and injecting subcutaneously; the dosage as regards number of bacteria is not given. He reported decided beneficial results and recommended its further use. His results, however, did not excite any special interest as nine years elapsed before the literature contains any further reference to the therapeutic use of typhoid vaccine. In 1902 Petrusky used a combination of typhoid vaccine and immune serum with favor-

able results. Another period of six years then passed by before any further clinical reports were published. Pescarolo and Quadrone in 1908 inoculated twenty typhoids subcutaneously with living attenuated organisms and again reported favorable results. From 1909 to the present time numerous reports appear in the literature with various typhoid vaccines given subcutaneously; the dose varying from 25,000,000 to 1,500,000,000, repeated every three to four days until 2 to 4 doses had been given. Krumbhaar and Richardson have collected from the literature 1806 cases so treated, with thirty-five of the thirty-nine authors reporting good results—the mortality being 5.4 per cent. With the exception of Petrovitch, satisfactory controls were not used. This author treated 460 cases with three doses of 20,000,000 each, using the Rawling's strain, and obtained a mortality of 3.2 per cent. With 220 controls the mortality was 8 per cent. This year Krumbhaar and Richardson report ninety-three cases, observed personally, and receiving subcutaneously in three doses a total of one billion or more, beginning usually with about 100,000,000, with a final dose of 1,000,000,000. The mortality was 7.5 per cent. and in 170 controls 8.2 per cent.; relapses in the treated occurred in 6.4 and in the untreated in 3.5; complications in the vaccinated 1.8 and in the controls 1.4 per cent. From these various statistics it is really difficult to draw conclusions. The death rate in typhoid is so variable that it would be difficult to say whether a mortality of 5.4 gave evidence of special therapeutic results. When we turn to the series of Krumbhaar and Richardson with controls, while they state the majority of cases were favorably affected by the vaccine, the mortality rate, frequency of relapses and complication, fail to support this conclusion. It can, therefore, be said that it is still to be proven whether subcutaneous use of vaccines in typhoid has actually lowered the mortality, the final test for the curative value of any therapeutic measure. There is, however, considerable evidence that the intensity and duration was lessened. Especially interesting in the light of the effect of intravenous typhoid vaccine was the occasional sudden drop of temperature to normal after a subcutaneous injection, this fall in temperature in a few instances being permanent. This observation was first made by Fraenkel in 1893, two or three of

*Read before the Chicago Society of Internal Medicine, November, 1915.

his series terminating in this manner. Recently Fistmantel treated fifty-two patients with subcutaneous injections, repeated every fourth day with increasing doses of vaccine, beginning with 100,000,000 and increasing to 400,000,000, and in 50 per cent. of the cases had a critical or rapid lytical fall in temperature. In seven cases after the lapse of a few days the fever reappeared, but in the remainder the disease was permanently aborted.

During the past year the intravenous use of typhoid vaccines have been quite extensively employed, first by Penna, then by Kraus and Mazza of Buenos Ayres, and later independently by a Japanese physician, Ichikawa. It might be stated that much earlier than this intravenous typhus vaccine had been used in France with undetermined results. Kraus used 50 to 100 millions of Vincent's typhoid vaccine, a polyvalent ether killed preparation. Ichikawa used a vaccine sensitized with the serum of patients convalescing from the disease; the bacilli mixed with the serum was placed in the incubator for five or six hours, then centrifuged, washed in normal salt, and finally 0.3 phenol added and the vaccine was ready for use. He measured the bacteria by the platinum loop, so it is impossible to state the actual dosage. In the reports from German sources both sensitized and unsensitized vaccines have been used, the sensitized vaccine being prepared as a rule after the method of Besredka. Either the dead or living cultures by this method are sensitized in immune horse serum. Gay and Claypole in this country have used the bacterial sediment of alcohol killed, sensitized bacteria from which the endotoxins have been removed. It is quite difficult to determine whether better results have been obtained by the use of the sensitized vaccines. The percentage of cures with both sensitized and unsensitized vaccines with different observers show such marked variations that it is impossible to draw definite conclusions. From certain observations to be reported later it appears quite improbable that sensitization of the vaccine increases its value.

The intravenous injection of two to three hundred million typhoid bacilli is followed within about thirty minutes by a chill and marked transitory rise in temperature, soon dropping to normal or subnormal. Following this the temperature may take one of three courses: remain

subnormal for a few hours or at times a few days, then return to and remain permanently normal, thus terminating in crisis. Second, after the chill and fall in temperature, there is a gradual or rapid rise to about the previous level, then a daily reduction in temperature reaching normal within there to five days, thus terminating by lysis. Finally a group where, after the chill and fall in temperature, there is a rise to the previous level and the disease pursues its course unmodified. In not all cases is there a chill following the injection. Meyer has reported twenty-eight cases treated with excellent results, and in none of these was there a chill. As far as the primary reaction is concerned this is the same in those in which the disease is aborted and those unaffected by the treatment. In the aborted cases coincident with the disappearance of the temperature there is a marked improvement in the patient's general condition. Gay and Claypole have studied carefully the effect on the leucocytes following the injection. Immediately after the injection a marked leucopena developed, which in one case reported fell to 950. Then a gradual rise occurs, which within twelve to eighteen hours may reach twenty to thirty thousand, returning then quite rapidly to normal. Gay believes this hyperleucocytosis is an important factor in developing an immunity.

The total reported typhoids treated by this method is still too small to enable conclusions to be drawn regarding the effect on mortality, relapses or frequency of complication. Ichikawa, who treated the largest number (87 cases) reports a mortality of 11, with 30 per cent. in the controls. Others have reported lower mortality in the treated than in the controls. These results, however, are not more favorable than those that may be culled from the literature where patients have received the vaccine subcutaneously. It is, therefore, too early to determine whether this new method of treatment will lower the mortality. Relapses occur quite frequently after the intravenous vaccine, the temperature remaining normal for a few days, then a gradual rise with a febrile period of several days. The one striking result following the intravenous use of the vaccine is the immediate and permanent interruption of the fever. All of those who have used this method report a varying percentage of patients in which the disease has

been aborted. I have collected a total of 226 cases so treated from six investigations, Rhein, Eggerth, Gay and Claypole, Meyer, Csernel and Ichikawa, with 121 or 53.5 per cent. reported as terminating by crisis after one or more injections. When these statistics are carefully analyzed we find that the term aborted has not been confined to those cases where an abrupt interruption of fever occurred, but also to patients where a definite and gradual fall in temperature was noted. Meyer treated twenty-eight cases, twenty-six of which he reports were aborted. However, when the fever curves are studied we find that following the injection the fever terminated by lysis rather than crisis. It is nevertheless proper to speak of both of these types as being aborted as a result of the treatment. Inasmuch as Meyer's results are the best up to date it should be said that practically all of his patients had previously been immunized against typhoid, and as he states such patients in case they contract the disease have it in a very mild form. Csernel reports the least favorable results, only 19 per cent. of his 21 cases terminating by crisis, an additional 47 per cent. terminating rather rapidly by lysis. Only two patients in his series were unaffected by the treatment. With statistics up to date it can be said that in at least 50 per cent. of the patients treated the disease was definitely shortened.

The dosage used shows quite wide variation, the amount at present recommended for the initial treatment is three hundred million. If no results are obtained after a lapse of four days a second dose of five hundred million is given, and if necessary after a lapse of the same period of time Meyer gave one billion. On the other hand Kraus obtained very good results with fifty to one hundred million and Csernel fifteen to thirty million. In the majority of cases a single injection, provided the patient is going to react favorably to the vaccine, produces definite results. Eggert, after a single injection in thirty-four out of forty-eight cases observed a crisis with permanent disappearance of fever. He used 1 c. c., equal to one billion of Besredka's living sensitized bacteria. Judging from his statistics the large dosage gives the best results. When no permanent results follow a single injection a termination by crisis or lysis may follow a second or third injection. In some cases following a

single injection the crisis does not appear for two or three days as in one case from Csernel's series.

Whether beginning this treatment very early in the course of the disease gives better results than when begun later has not been determined. The majority of cases treated were in the second week of the disease. Ditthorn and Schultz claim the best results after the tenth day, as the cells have then been given an opportunity to form antibodies. They report that in the incubation period the vaccine is of little value.

From the violence of the reaction following the injection unfavorable consequences might be feared. Reports up to the present time would indicate, however that there is very little attendant danger. Extremely weak patients or those with bad hearts are unsuited for the treatment. Among those reporting unfavorable symptoms are Sladeck and Kollowski, who treated only four cases and each developed marked diarrhea with one fatality ascribed to the vaccine. No other investigator has reported symptoms of this character, so their explanation is difficult. Eggert reports a hemorrhage appearing immediately after the treatment and terminating fatally. He reports a second death occurring soon after the injection, where neither the clinical nor autopsy findings explained the cause. As already stated, Eggert's dosage was very large, one billion. There is no positive evidence that the vaccine caused death, but Eggerth's experience should make us hesitate to use the very large doses. It would appear that on account of the rise in blood pressure during the chill the danger of exciting hemorrhage cannot be ignored. The blood pressure in the five cases treated on my service at the county hospital was taken before and then during the chill. In one patient there was a rise of 25 m. m., in the others less. We have previously observed, however, that even a more marked increase in blood pressure may occur during a chill as in the chill following the intravenous injection of immune chicken serum in the treatment of pneumonia. On one occasion we obtained a rise in pressure of 45 m. m. Further observations will be needed before it can be stated positively that the intravenous vaccine treatment of typhoid is free from danger.

I decided during the present autumn to use the intravenous vaccine on all the typhoids on my service at the County Hospital. In addition, Dr.

Walter Hamburger kindly permitted me to have his cases. On account of the unusual infrequency of typhoid this year only six patients entered the two services during this period. Dr. Gaarde kindly prepared the vaccine, using the Rawling's strain and sensitizing with serum from convalescents. Our initial dose with one exception was three hundred million, the exception noted received two hundred million. In each instance there was a violent chill with rise in temperature in one instance passing 107° F. One patient received a second dose three days later of five hundred million. No untoward results were noted. Leucocytes count were made just before, two hours and twenty-four hours after the injection. The twenty-four hour count in every instance showed a leucocytosis, varying from 9,500 to 15,000. In only one of the five cases was the course of the disease apparently modified. In this instance there was a typical crisis with temperature remaining normal. In one case the temperature dropped to subnormal, remained there twelve hours, and then rapidly reached the previous level, where it remained. A second injection of five hundred million three days later also failed to modify the course of the fever. In this series one death occurred due to acute appendicitis. These results as compared with others reported are poor. The dosage and preparation of the vaccine was the same as used by others who obtained successful results. It is true with one exception each patient received but a single dose of vaccine. However, the report shows that in the majority of cases where the disease has ended by crisis this occurred after the first injection.

Reference has already been made to the questionable values of sensitized vaccine, for the reason that apparently the reaction is not a specific one. Reference was made to Rumpf's results, using dead cultures of *Pyocyaneus*. He was a colleague of Fraenkel's who was first to use typhoid vaccine as a therapeutic measure. Suspecting that the favorable results obtained might not be specific in character, he prepared *Pyocyaneus* cultures and treated fifty-five patients with results which he states were identical with those obtained by Fraenkel. Ichikawa reports almost equally good results when the typhoid vaccine was used in paratyphoid. Krause reports equally good results when a polyvalent colon

bacillus vaccine was used. He tried this on a single case of typhoid, but the results were so striking, the disease terminating by crisis, that there can be little doubt that this was due to the vaccine. Lüdke treated twelve patients with bouillon culture of colon bacilli, the dosage not given. Two of these terminated by crisis and in five others the course of the disease was definitely shortened. Finally Lüdke believing the reaction was not a specific one, treated ten typhoids with an intravenous injection of 1 c. c. of 4 per cent deutero albumose. Five of these terminated immediately by crisis. One reached normal within two days and only one was apparently unaffected. He saw no ill effects, there was no increase in the leucocytes and the titer of the agglutination curve was not effected. Lüdke treated one patient with Wittes' peptone, but without results.

All these results indicate that the reaction is not a specific one, and opens up a new view point in vaccine therapy. It may assist in explaining the favorable results obtained where vaccines have been used indiscriminately. It may explain why favorable results are at times obtained in asthma after the use of vaccine of various compositions. It probably also explains the favorable results obtained in some instances after the use of Shaffer's vaccine, which during the experimental stage was given in large doses intravenously, giving rise to a violent chill, and often followed by marked amelioration in acute arthritis, both in the temperature and joint tenderness. It would appear that following the injection of non-specific foreign protein, a rapidly developing immunity may result, probably due to the sudden mobilization of enormous amounts of loosely fixed antibodies or ferments. These results are in accord with the observations of Vaughan, who reports the presence of a ferment in the blood serum after the injection of egg white. Furthermore, that after the use of egg white, animals showed the same degree of immunity to colon bacilli as they did after injection of colon vaccines. He also demonstrated that animals immunized by prodigiosis cultures also showed a certain degree of immunity to typhoid and cholera microorganisms, thus showing that the immunity imparted was not specific. While up to the present time the use of non-specific vaccines or albumoses have been limited to the treatment of typhoid, there is no reason to

believe that it may not apply equally well to other acute infections. The rise in temperature after the intravenous vaccination probably arises from the protein in the bodies of the destroyed and digested bacteria. If this be true the question arises, can we safely suddenly immunize against acute infections in this manner? Perhaps time will show that the sudden destruction of enormous numbers of bacteria in this manner may set free such a large amount of toxins that a fatal termination may follow. Whether the future shows that this method of treating acute infection has therapeutic possibilities, it at least opens up an important field for speculation and investigation.

For complete references to the literature the reader is referred to the paper by Frederick Gay.—*The Journal of Laboratory and Clinical Medicine*, 1915, i, 13.

DEMENTIA PRAECOX STUDIES.

SOME RELATIONS OF THREE LIPOID CONTAINING
ORGANS AND THEIR CONDITION IN PATIENTS
WITH THE CLINICAL DIAGNOSIS OF
DEMENTIA PRAECOX.*

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We have no intention of presenting the strictly scientific aspect of the lipoid content of the brain, the adrenal and the sex glands, but simply to present enough of our material knowledge of these three organs to permit an interpretation of some of the findings in adolescent insanity.

There is a remarkable correlation between the brain, the adrenal glands and the sex glands. This is forced upon one's attention from whatever side the subject is approached. In hydrocephalus the adrenal medulla is absent, probably as a congenital anomaly. Carlo Ceni has recently shown that mild concussion of the brain is attended by a prolonged disappearance of spermatozoa from the testicle. It is quite uncertain whether the low blood pressure which attends cerebral concussion is due to the direct injury of the brain centers or to the secondary paralysis of the adrenalin-forming portion of the adrenal glands. We shall not attempt to reconcile these

and many other correlations which it is necessary to mention, but await further discoveries and further developments before this reconciliation can be hopefully undertaken.

The adrenal gland and the testicle arise in the same embryonal region and both organs contain portions of that matrix which gives rise to the adrenal cortex and to the chromophil cells of the testicle. The glandular elements of the testicle and the medullary portion of the adrenal have entirely distinct and separate embryonal origins. The medullary portion of the adrenal develops from or at least contains parts of the sympathetic nervous matrices. The origin of the seminiferous tubules in the testicle is wholly glandular and unrelated to the sympathetic nervous system.

Of the glands of internal secretion the adrenal gland has been most successfully studied and the function of the medullary portion has been most completely explained. The secretion of this gland is known to depend for its activity upon a substance isolated in 1901 by Takamine and called by him "adrenalin," the exact chemical composition of which was discovered and published two years later by his colleague, Professor Aldrich. Since that time the medical world has been supplied with a definite, measurable, chemically pure physiologic secretion of the adrenal medulla, which is the first glandular secretion accessible for experimental purposes. Adrenalin has the chemical formula, $C_{10}H_{15}NO_3$, and has been synthesized by Dzierzowski, but the synthetic product is not as active as the natural product because it is composed of two optically active bases, one of which is nearly inactive physiologically. Adrenalin is related to the toxic ethylamines and has the amino group on which the toxicity of each one of them depends in the beta position. It has the greatest pressor action of them all.

1. *Adrenalin pressor phenomenon:* The physiologic actions of adrenalin are many, but we shall consider at this time only a few of them. The most significant action of adrenalin is its pressor potency—the power of the substance when introduced into the circulation to raise the blood pressure. This is best studied upon the decerebrated cat by the injection of small doses of adrenalin solution directly into a vein and noting the automatic record of the carotid pres-

*Read before North Central Illinois Medical Association at Peoria, Dec. 7, 1915.

sure upon a revolving drum. By this method it is demonstrated that the action of adrenalin is almost instantaneous, that it continues for but a very short time when it subsides to be followed a few moments later by the very slightest shadow of a rise. Such a record is shown in the accompanying reproduction. Fig. 1.

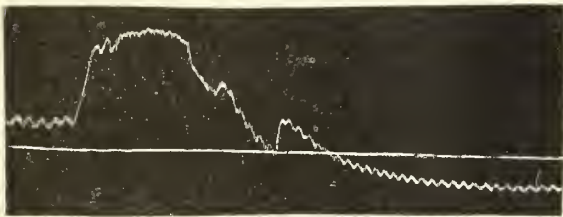


Fig. 1. Adrenalin reaction from injection of 1.0 cc. of solution of adrenalin 1-10,000 into femoral vein. Record made from canula in carotid artery. (Dr. Julian Lewis.)

One of the peculiarities of this pressor action of the adrenalin is the fact that the base or salt is not consumed or bound by this reaction as an alkali is fixed when it meets an acid. If the blood of the animal which has ceased to react to the dose of adrenalin is passed into the veins of a second animal under similar conditions, that second animal's blood pressure will rise almost as high as did the blood pressure of the first. Many ingenious theories have been proposed to explain this phenomenon, but their discussion is irrelevant to our purpose.

When 0.5 c.c. (P. D. & Co.'s) adrenalin solution 1-1000 is injected into the deltoid muscle of a healthy man, the pressor action of the dose is almost as great as it would be were the injection made into a vein; but as Meltzer has shown it is somewhat more protracted, lasting from ten minutes to an hour. The average rise of blood pressure under these circumstances is anywhere from 40 to 80 mm. of mercury. The following chart, Figure 2, is such a record made recently on a young man who was just recovering from some excess in the use of alcohol. It will be noticed that the rise is rather rapid while the fall is not as sharp as it is in the case of the intravenous injection in the decerebrated cat.

2. *Adrenalin insusceptibility:* (Willi Schmidt phenomenon.) In most cases of dementia praecox the blood pressure is low. The peak in nearly a hundred cases of young dementia praecox patients taken during the acute manifestation was

between 85 and 90 and the extremes were 55 and 120.

In many such patients with the diagnosis of dementia praecox, especially in the catatonic

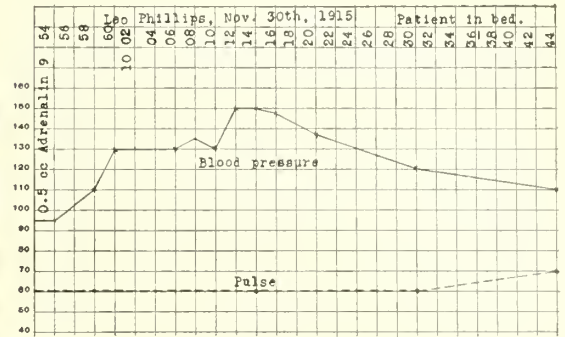


Fig. 2. Blood pressure and pulse in patient after 0.5 cc. 1-1000 solution of adrenalin, P., D. & Co. This young man gives history of having catatonia one year at least ten years ago.

forms, the blood pressure curve after the intramuscular injection of 0.5 c. c. 1-1000 adrenalin solution (P. D. & Co.) is quite paradoxical. As a rule the blood pressure falls during the first two minutes after the injection, from 5 to 20 mm. of mercury and it slowly rises again, reaching the datum in 20 to 50 minutes. The following chart was made December 1, 1915, from a young married woman with catatonic dementia praecox of less than three months standing. Fig. 3.

3. *Adrenalin mydriasis.* (Schultz phenomenon). If a few drops of a 1-1000 adrenalin

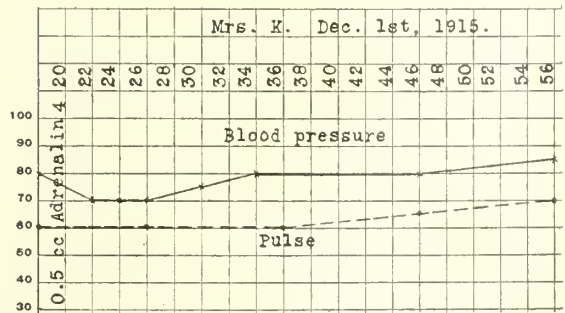


Fig. 3. Record of adrenalin insufficiency reaction, Mrs. K., Dec. 1. Slight but positive adrenalin mydriasis. Abderhalden reaction to ovary and corpus callosum.

solution be instilled into the conjunctival sac of the eye of a healthy person and this is repeated two or three times during 10 minutes, no modi-

fication of the pupil can be recognized at the end of half an hour. If, however, the same maneuver is performed upon a person whose sympathetic has been cut above the superior cervical ganglion or the sympathetic cut in front of the ciliary ganglion, this instillation will be followed by a dilatation of the pupil. (Cordes) A similar dilatation results on the instillation of adrenalin into the eye of a dementia praecox patient. In a few instances where both pupils are excessively dilated the pupil under adrenalin reaction contracts almost to a pin point. This is known as the adrenalin pupillary paradox, (Meltzer).

There are a few other conditions in which adrenalin mydriasis occurs. We have recently noticed it in connection with the pressor adrenalin paradox during the crisis of tabes and it perhaps occurs in such cases of asthma as are relieved by adrenalin injections into the muscle or vein. Of course, many cases of tabes have the Argyll-Robertson pupil and are not susceptible to the test.

4. *The toxic amines:* In order to present the next phenomenon it is necessary to diverge a little. A number of toxic amines are produced in the body, some in health and more in disease, by the action of microorganisms upon the normal or abnormal secretions of the body and the contributory elements accidentally presenting themselves in the food. When tyrosin is acted upon by one of the intestinal organisms ergotoxin or paroxyphenylamin is produced. This amine is toxic; it raises the blood pressure and as it passes through the liver it is so deaminized that it is rendered nontoxic and is excreted as paroxyphenylacetic acid. Ergotoxin, then, is a toxic amine of which we have a clear history from the crude material, the tyrosin, to the harmless excretory product, the paroxyphenylacetic acid. Fig. 4-A. There is another and much more toxic amine which develops in the intestinal tract by the action of the intestinal messmates of man upon a normal constituent of the mucosa of the intestine, that is by the action of the colon bacilli, or the bacillus aminophilus intestinalis upon histidin. This toxic amine is known as the betaminazolyethylamin. Fig. 4-B. It depresses the blood pressure and contracts the finer bron-

chioles of the lungs. When injected into guinea pigs in fatal doses it produces death in the condition of anaphylaxis, that is by asphyxia with the lungs distended with air. The fate of this amine in the body is not definitely known. When injected into dogs it is almost harmless. Eustis has shown that an extract of the turkey buzzard's liver renders the amine harmless with the production of an indol base, but this is hardly consistent with the composition of the original toxic amine.

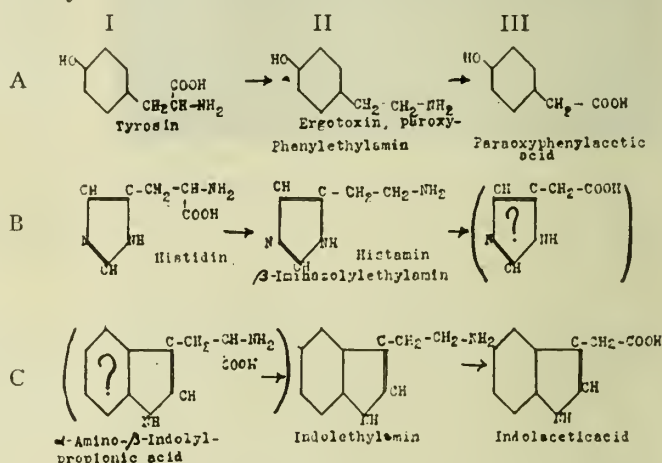


Fig. 4. The three toxic amines, A, B, C. The source of their formation in the intestinal contents, Column I; the chemical formulae, Column II; and the form in which each is excreted, Column III.

There are, however, many observations that suggest the potency of the human liver in a state of health to take care of a moderate quantity, at least, of this toxin. There is a third toxic amine, Fig. 4-C., the origin of which in the intestinal tract is still unsolved, but its deamination by the liver is very well demonstrated and the recognition of the excreted products in the urine, both qualitatively and quantitatively, are fortunately quite easy. This is the indolethylamin which arises in the intestines by putrefaction of some undiscovered albuminoid. It is excreted in the form of indolacetic acid for which we have relatively easy and simple tests. It is, however, far less toxic than either of the other amines and it raises the blood pressure in a very moderate degree.

5. *The Antagonism of adrenalin to the toxic amines:* There is one characteristic phenomenon connected with these amines in which we are particularly interested and for which this lengthy description has been introduced. If an animal is given a nonfatal but physiologic dose of any one

of these amines or a combination of two or more of them and is then immediately given a pressor dose of adrenalin, the action of the adrenalin is paradoxical, that is, the blood pressure falls instead of rising.

This is exactly the same reaction as we observe in dementia praecox. The injection of adrenalin (0.5 C. C., P. D. & Co.'s, 1-1000 adrenalin solution) which ought to raise the blood pressure 40 mm. of mercury, generally produces a fall of from 5 to 30 mm. as in the following blood pressure record of a mute and catatonic patient. Figure 5.

6. *The adrenalin paradox in gastric crisis of tabes:* In several cases of gastric crisis in locomotor ataxia a similar adrenalin reaction has been observed. The patient in the agonies of crisis with a blood pressure of 150 was immediately relieved of pain and the blood pressure fell to 120 in two minutes. The patient fell asleep, the blood pressure remained down for

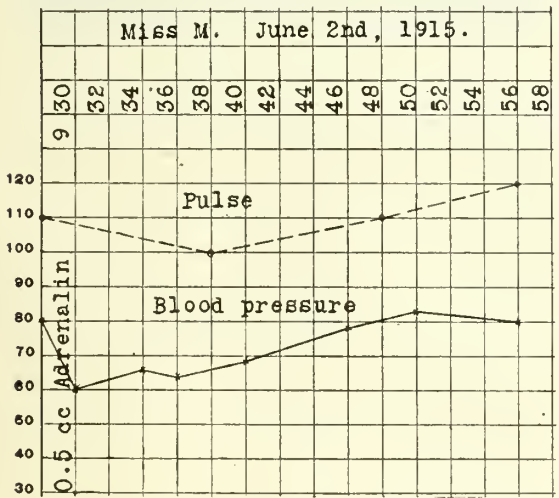


Fig. 5. This was the record of adrenalin reaction in Miss M., June 2, 1915. She had marked adrenalin mydriasis. She has since that time greatly improved.

fifty minutes and then began to rise slowly. The patient awoke with the recurring pain and the pulse which had remained almost unmoved rapidly rose. Such an adrenalin pressor reaction in a case of gastric crisis is reproduced in Fig. 6 and another in Fig. 7.

7. *Adrenalin insusceptibility and the toxic amines:* Since these two reactions, the one in dementia praecox and the other in the gastric crisis of locomotor ataxia, are similar to what we should expect if the patients had previously been

poisoned with any one of the three toxic amines, it occurred to us to study the stool and discover, if possible, the presence of the microorganisms

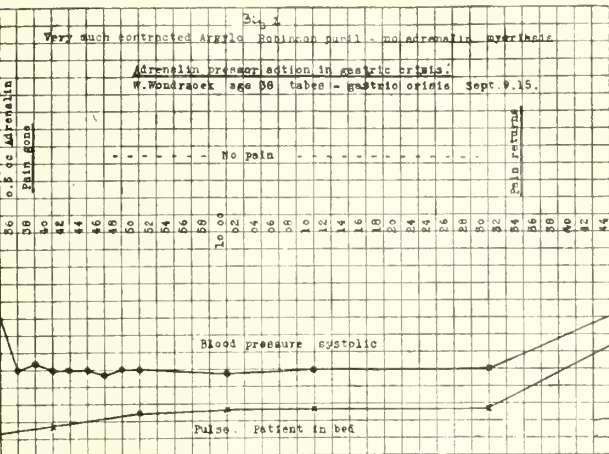


Fig. 6. Gastric crises, Mr. W., first attack noticed. The relief of pain was instantaneous and constant but the patient did not sleep.

that change tyrosin into ergotoxin and histidin into betaminazolyethylamin, to discover if possible the presence of any one of these amines in the stool itself, and to examine the urine of

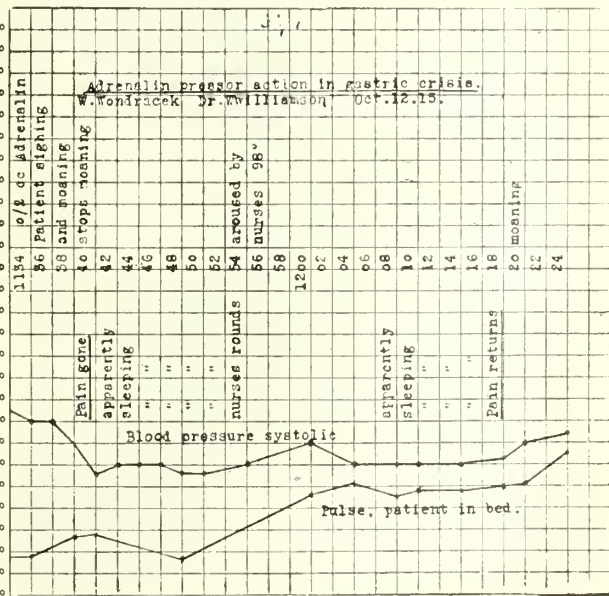


Fig. 7. Mr. W., second attack of gastric crisis in which gastric ulcer was diagnosed. The patient slept. Pain disappeared at end of four minutes.

these patients before and after the crisis and during and between exacerbations of the disease for the products of their catabolism preparatory to excretion.

Up to the present time we have found very large loads of betaiminazolylethylamin in the stools of gastric crisis patients and smaller loads in the stools of the dementia praecox patients that we have been able to study during the continuance of a low blood pressure.

8. *The relation of cecal stasis to production of toxic amines:* Arbuthnot Lane has treated a number of cases of prolonged nervous prostration with low blood pressure and indolacetic acid in the urine by the removal of the colon as far as the sigmoid flexure and the implantation of the ileum into the sigmoid at a proper angle with the ileum. This necessitated sacrificing three or four inches of ileum as well as of the ascending, transverse and descending colon. This material was utilized by Dr. N. Mutch,¹ (Quar. Jour. of Med., July, 1914, Vol. 7), for the study of the fauna and flora of the excised intestine. He demonstrated the presence in the intestine below the ileocecal valve and sometimes an inch or two above it, of the microorganisms that are capable of producing betaiminazolylethylamin when

though he found that the products of catabolism of ergotoxin and indolethylamin, which are readily recognized, and were found in the urine



Fig. 8. Robert Frank; six hours after barium meal. Stomach in the pelvis, compare figures 60, 61 and 62 on page 64 of Lane's "Operative Treatment of Intestinal Stasis," Nesbit Co., London, 1915. (Dr. E. F. Blaine.)

growing upon a nutrient material containing 3 per cent. of histidin. He was not, however, able to recognize the catabolized amine in the urine, al-



Fig. 9. Robert Frank; fifty-four hours after barium meal. The entire colon is still filled, as noted by fluoroscopy and increase in the amount of gas. "Opposite the hepatic flexure there was seen an extra bend or loop." (Dr. E. F. Blaine.)

of these patients before operation, almost entirely disappeared after recovery from the operation. The absence of these catabolized products of the two known amines was coincident with the general improvement of the patient's condition and their accidental appearance in the urine as the result of unfortunate selections of diet were attended by the appearance of the symptoms in a proportionate degree.

9. *Fluoroscopic examination of dementia praecox patient after a barium meal:* At the present time it is possible to say that the few cases of dementia praecox in which there has appeared coincidental low blood pressure, paradoxical adrenalin reactions and betaiminazolylethylamin in the stool that there has also been demonstrated a considerable retardation in the intestinal tract with exaggerated retardation in the ascending colon and the first half of the transverse colon. Every one of these patients has manifested at one time or another the symptoms of acute mucous colitis and in two cases an obvious local obstruction in the transverse colon

near the hepatic flexure has been demonstrated by fluoroscopic examination (in one case by Dr. E. F. Blaine and in one case by Max Hubeny) and



Fig. 10. Rudolph H—; fifty-four hours after barium meal. By fluoroscopic examination a fixed extra loop was found as if attached to the gall bladder. Small pieces of the meal could be passed through by massage. Such a small piece can be seen in the reproduction. (Mr. Max Hubeny.)

by x-ray photographs of a barium meal. The accompanying photographs, Figs. 8 and 9, (Blaine), represent the position of such a meal at the end of six hours and again in the ascending and first portion of the transverse colon at the end of fifty-four hours in a patient with a blood pressure of 90, an adrenalin mydriasis and an adrenalin reaction raising the blood pressure to 120 in seven minutes, falling to 100 again at the end of twenty minutes. The load of betaminazolyethylamin in 100 grams of solid stool was more than 0.001 gm. as estimated by the Eustis Eppinger method of skin reaction. Another patient's retardation is shown in Fig. 10. It is still more conspicuous.

10. *The defensive ferment reactions, the peptolytic index and the antitryptic index:* The defensive ferment reactions of Aberhalden show a dystrophic condition in the sex glands, the cerebral cortex, and the adrenals in nearly all dementia praecox patients. The exceptions are so few that they must be looked upon as conditions of the exhaustion phase of the reaction. The peptolytic and the antitryptic indexes are also high. These defensive ferments remain in the blood of the patient for months and years. In animals the defensive ferments remain three to six months after being injected into the circulation from patients or from animals. In the case of Leo Phillips, apparently recovered from clin-

ical dementia praecox, the defensive ferment against cerebral cortex and pancreas were present in the blood ten years after relative recovery from a severe attack of catatonia of two years' duration.

11. *Morphologic findings in acute toxemias and in dementia praecox.* Todde has shown that the testicles of patients with dementia praecox are much smaller, weigh much less and are less liberally supplied with blood than the testicles of sane patients of the same age and size. He has shown also that histologically these testicles contain no spermatozoa and the glandular elements are broken down and shedding colloid cells, presenting a picture almost identical with that which is observed by Carlo Ceni after cerebral concussion, and by Herman Cordes and D. Hausseman after the acute infectious diseases such as pneumonia, cerebrospinal meningitis and erysipelas.

It has recently been shown by Elliott that the cortical substance of the adrenal gland reacts in a remarkable manner toward the infectious diseases. This reaction is not parallel with the reaction of the medullary portion of the adrenal. The load of lipoids in the adrenal cortex remain unchanged in starvation and in severe hemorrhages, but they rapidly disappear in pneumonia and practically every acute infectious disease except diphtheria. It is suggested that even in diphtheria in old people the lipoids are similarly destroyed.

12. *The relations of cerebral, adrenal and testicular lipoids to life and disease:* We have no notion what function the lipoids have in the process of life and nutrition. The lipoids of the adrenal gland and of the sex glands resemble no other lipoids in the body except, in a limited way, the lipoids of the brain. The lipoids of the brain are differentiated from each other chemically as cerebrin, phrenosin, kersasin and cephalin. Of all of these cephalin is the most studied and the best understood. Cholesterol is a near relative of the lipoids and yet no cholesterol is to be found in the brain. However, the oxycholesterol is found in the brain of adults but not in the brains of children. Dr. Paul Weston has recently studied the cholesterol to be found in the cerebrospinal fluid and has noticed that the average amount of cholesterol is greatly increased in the epileptic psychoses, in dementia praecox and in cerebral syphilis.

The lipoids of the adrenal cortex are highly refracting, doubly polarizing and in the living body they are liquid and yet crystallized. The blood vessels which circulate between the organized systems of the adrenal cortex are devoid of endothelium. The blood circulates in what appears to be lymphatic capillaries. The rapidity with which the lipoids disappear in toxemias would indicate that the relation between the circulation and these highly refracting crystals was intimate. Because the lipoids disappear so rapidly in the multiple neuritis of beri-beri and return so promptly after the experimental animals are fed upon vitamine or vitamine-containing food, we suspect there is some relation between the mobilization of vitamine and that of lipoids.

At the present time there is no way of explaining the disappearance of spermatozoa in the testicle and the disappearance of the lipoids in the adrenal cortex in cerebral concussion, in acute toxemias and in dementia praecox.

13. *The cyanosis and methemoglobinemia of dementia praecox:* Probably every physician has noticed the characteristic cyanosis which comes and goes in most patients as an early manifestation of dementia praecox. In a few instances careful examinations of the blood have shown an exaggerated polycythemia (6-8,000,000) and in a few of these cases spectroscopic examinations have demonstrated the presence of the methemoglobin or sulphhemoglobin-line (λ 612-618), in place of the ordinary clear field of hemoglobin. The studies of Gibson and those of Mackenzie Wallis demonstrate the intimate relation between oxyhemoglobin and an intestinal retardation with an infectious process in the intestinal tract, analogous to that which results in the production of the betaminazolyethylamin in Arbuthnot Lane's cases studied by Mutch. It is possible also in most of these patients to isolate from the saliva a nitrite producing organism, known as the nitrosecacillus which can be grown on artificial media. The residue from this growth filtered through a Berkefeld filter has the power of deoxidizing hemoglobin with the production of methemoglobin. This salt is then ready to absorb the sulphur from the sulphureted hydrogen of the intestinal tract with the production of sulphhemoglobin. In one case described by Gibson there was a colon bacillus septicemia which

was demonstrated by blood cultures. No one has yet made any rational explanation of the appearance and disappearance of cyanosis in dementia praecox patients.

14. *Conclusions:* In presenting these phenomena grouped about the three lipid containing organs of the body, it is our desire to call attention to the physical manifestations of that disease which furnishes 10 per cent of the admissions to our insane asylums, and consumes three-fourths of the total budget of the boards of administration in the several states in a hopeless custody. The phenomena which we find in dementia praecox are not unlike the phenomena which are so obvious in acute infectious processes, or in conditions for which there are obvious, adequate mechanistic causes. The disappearance of the lipoids of the testicle, the adrenal and the brain in pneumonia is frequently accompanied by the delirium of pneumonia. The same may be said of erysipelas, typhoid, smallpox and such localized infectious conditions as appendicitis and abscess of the liver. The abnormal adrenalin reactions of dementia praecox are not unlike these reactions when the superior cervical ganglion, or the ciliary ganglion, is excised or when the whole organism is poisoned with one of the toxic amines. The appearance of the toxic amines in the stool occur in dementia praecox, accompanied in a few cases at least by the same intestinal deformities as we find in the cases operated upon by Arbuthnot Lane and studied by N. Mutch from a bacteriologic and a chemical standpoint. The further association of cyanosis which in some cases is due to methemoglobinemia and polycythemia is only a further exhibition of the action of intestinal infection upon the normal secretions of the intestinal tract and the normal elements of the food.

We would like to emphasize strongly the desirability of studying *coincidentally* the many manifestations of disease in cases of dementia praecox and do this from every possible standpoint, believing as we do that by such a method alone can the complicated phenomena of a disease which affects most strongly the three great lipid bearing organs of the body be rationally explained.

From this broken sequence of phenomena it may not be perfectly obvious to the reader just what conclusions may reasonably be drawn.

We make no pretense to having discovered the etiology of dementia praecox and we suggest no method for its treatment. That the disappearance of the lipoid substance in the adrenal cortex and the disturbance of the glandular elements in the testicle in acute infectious diseases call no more loudly for a mechanistic interpretation than do the similar phenomena in dementia praecox seems to us an undemonstrable axiom. This paper is a plea for immediate liberal research on dementia praecox.*

*From the Laboratory of the Psychopathic Hospital, Cook County Hospital, Chicago, under the direction of Dr. Adam Szwajkart.

CO-OPERATIVE METHOD OF DIAGNOSIS.*

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The ultimate purpose of all medical activity is cure or prevention of disease. The human race is subject to a large number of inherited and acquired ills. In the course of centuries, through the efforts of civilized nations, and particularly through the labors and studies of individual scientists, the cause and the symptoms of a good many diseases have been unraveled. Cures have been found for many of them by accident or experiment, by layman and scientists. The greatest progress, however, has been brought about by the ability of scientific men to prevent many of these diseases eliminating their cause.

If one wishes to practice medicine, he must familiarize himself with the most important methods of treatment, but most of all must he be familiar with the signs or symptoms of disease. He must recognize it when he sees it. Is it possible that there is any physician in the world who would be familiar with all signs and symptoms of the diseases and would he recognize them in a concrete case? No. There are some of the diseases which are more frequent—so-called “common diseases,” which even every layman recognizes; there are others, which are so difficult to recognize that even the best minds fail to do so. We call this recognition, with the technical term, “diagnosis.”

The diagnosis has been regarded as the most important part of medicine. One can easily find out about remedies, about the cause, about the

progress and about the prospect of a case, if one knows what is the matter with the patient.

Science has, therefore, developed from the earliest times—methods of finding out, or methods of diagnosis.

The history of the methods of diagnosis is very interesting. From time immemorial there have always been people, who were more interested in sickness than others. They had some sort of intuitive power of instinct, something that we could call tact, which would tell them what ailed a person. It is quick intuition, at a glance, and often correct. It is a rapid way of thinking of these individuals, which is responsible for such good behavior of their mind; and happy is the physician who possesses, besides his knowledge and training, this quality. Many are naturally gifted with it, many learn it through experience and many never learn it, even with the greatest opportunities, but a large number of men can be trained to recognize disease even if they are not naturally talented and endowed with that rare critical mind. They may be good physicians at that. There is some consolation, therefore, even for those who have not that luck of natural gift.

If we follow the development of these methods of diagnosis, along side the development of medicine, we observe that it has kept pace with the progress of science.

At the time of a low state of development of medical science, there were also very inadequate methods of recognition of disease. As the knowledge of causes and science of disease progressed, the methods became more complex and more difficult. In our times, they are so complicated that there is hardly any man, who could boast of knowing them all perfectly.

In the olden times the physician would be called upon to administer help and give consolation. He did more of the latter, and whatever he administered in the matter of help, was such remedies or manipulations as he had learned through practice, or from others. Some of these means were very speculative, miraculous, with no reasonable connection of cause and effect; some of them were common sense treatment.

Examination of the patients for symptoms of disease was rare, and is a matter of later development, although some signs have enjoyed popularity for many centuries.

The tongue, which is so much neglected now-

*Read before the Chicago Medical Society, Dec. 1, 1915.

adays, was a very important symptom for centuries. The appearance of the urine was also a very popular criterion. The pulse has played an important role ever since medicine started to be scientific.

There are some stages of development in the methods of diagnosis perceptible. Up to very recent times, however, they were very primitive. The physician was a philosopher, making his diagnosis more from speculation and calculation than from actual examination. He arrived at the side of his patient, listened to the complaint, looked wise and deliberated, and then by calculation, made out what he thought to be a correct diagnosis. The patients looked up to him as a sort of supernatural power, an oracle, a collection of wisdom, and with awe at his presence. He was highly respected. He looked very dignified and had somewhat of the priest in him yet, from whom he originally derived his science.

Gradually he began to look at the tongue and felt the pulse, looked at the urine; science advanced; temperature and fever of the patient began to play an important role, change of pulse and circulation began to have significance. Other signs, which were clearly visible, like eruptions upon the skin and tumors, became apparent and more important. The use of the thermometer had made a great difference in the aspect of disease, although the change of pulse rate had already been regarded as a sign of fever.

At the close of the 18th and the beginning of the 19th centuries, perhaps, the most important changes took place in the methods of diagnosis. The appearance of the microscope brought about a tremendous upheaval, although not used at first at the bedside, but more as a plaything and a method of botany, than of medicine.

The gradual acceptance of the post mortem examination, and the introduction into the science of its results; the looking for the signs of the pathological changes, during life time, as introduced by some of the foremost pathologists, again changed the methods of diagnosis; palpation and percussion were methods which were introduced into the realm of diagnosis.

There are certain names which are closely connected with these original methods. The appearance of these famous men in medicine mark milestones in the method of diagnosis. We need mention only a few: Bright, with the diagnosis

of albumin in the urine; Laennec, with the plessimeter; Oppolzer Skoda, with the stethoscope, are such men.

Gradually, however, the methods became more complicated; the microscope was used at the bedside for the examination of secretions, excretions, tissues and gradually for the recognition of micro-organisms.

The chemical laboratory, with all its reagents and tests, was of great importance. There was a time, however, when the physician could master these methods, he was an excellent diagnostician and a good physician, he could employ them all because they were so simple and so practical. With some care and study, he could become an expert diagnostician. This time is within the reach of our own memory. At the time when we began to study medicine, bacteriology came first into use. We advanced with bacteriology. The diagnosis of blood began to develop, then came the marvelous discovery of the x-ray by Röntgen, its introduction into science, then microscopy and bacteriology began to branch out into difficult tests; serum tests, vaccine tests, Röntgenology began to split up into fluoroscopy and skiagraphy.

Surgery made great strides. We opened the body studied pathology on the living, and detected symptoms of disease unknown to that time. Most important, however, was this method, because by actual exploration of the living we could convince ourselves and others of the truth of our diagnosis.

The medical and surgical methods became so diversified, so intricate, the apparatus so multiple and so complicated, and so rapidly changed and improved, that the average physician, who is honest and conscientious, is unable to keep step with it, and here we have arrived at the present time.

Of course, with all the advancement of these methods, experts have developed in the different lines. They established laboratories for the use of those physicians who were not capable of making a laboratory diagnosis themselves. Many physicians have not kept up even with the knowledge of the methods, much less with their use. They still are in the habit of using either the original speculative method, or the primitive examining method, and unfortunately base upon these very insufficient methods, the most modern treatment, which must bring them often into conflict with themselves and with their results.

Operations are undertaken by them on speculation, theories, etc. Asepsis and progressive surgery has handed over to them weapons which become dangerous in their hands because of lack of diagnosis.

The question arises—what should we do to improve the conditions? One thing is sure and may be placed at the head of this whole consideration—there is no man living who can be an expert in all these lines of investigation nowadays. There are very few living who are experts in a part of these lines; still we all are after the best results.

The public demands the best and we are obliged to give them the best in us and in our science. In the struggle for existence those who do give the best will survive, the others will be brushed aside, fall behind, and will not be able to compete.

There are several ways out of this dilemma. Let us see how the different men help themselves out of the same. I will not speak of the charlatan, imposter or the pretender in medicine, or of the quack, but I will only speak of the men who mean to do the best but do not know how.

There is at first, the general practitioner, who has an average good knowledge, a fairly good experience, a good intuition, but not an expert in modern diagnostic methods. In a large number of his cases he makes a diagnosis with his common method. When difficult cases arise he either gives the case up to his more fortunate neighbor, or the patient gives him up and goes to his more fortunate neighbor. He keeps the patient with a sort of vague diagnosis, and of course a vague treatment, as long as he can. He often misses an important diagnosis, he often does not recognize an early cancer, and allows the patient to pass into a stage of inoperability and becomes therefore, through his ignorance or through his negligence, a cause for the patient's loss of life. If he is very conscientious he helps himself by consultation. He consults a man whom he regards more competent, perhaps an expert in a certain specialty, in which he thinks that case belongs. Large number of the practitioners are afraid, however, of consultation, because the public has come to regard the consultation equivalent with the acknowledgment of ignorance on the part of the physician and they lose confidence, going either to the consulting

man directly afterwards, or if he does not accept them, to some other man whom they regard more competent. Nobody can blame them, and the practitioner, knowing this difficulty, refrains as much as possible from consultations.

"A consultation is equivalent to giving up the case," I have heard many a doctor tell me, and truly so. Often they consult only when the patient urges them, but is that the best method? This is also a sign of loss of confidence on the part of the patient.

In many instances the consultation has been regarded as reassurance on the part of the consultant, that the patient may be lulled into a more confident attitude to his family physician.

Some more ambitious and conscientious practitioners try to make a better diagnosis by availing themselves of laboratory and expert diagnosis, sending their patients to the laboratories, sending secretions, blood, etc., for examination, sending them to the x-ray laboratory and getting reports.

I will dwell a little more on the difficulties of these methods although they are excellent in a way. They have their difficulties and drawbacks, they can be only routine examinations unless the physician discusses the case very accurately with the laboratory people.

The laboratory men, as a rule, are excellent specialists in laboratory examinations, but they are out of contact with actual disease. They do not see the typhoid patient for whom they make a Widal test, they do not see the patient whose sputum they examine, they become, gradually, routine experts who give a truly unprejudiced and objective report of that which is subjected for examination. Routine is often a drawback. For instance, the examination of urine can be made in five minutes or may take hours, it may be an all around examination in the usual, typical, uniform manner, or an examination for a special detailed purpose. It may be necessary, and would be suggested if the laboratory expert would know something about the case, that an animal experiment with inoculation, a special sediment test, etc., be made, but he does not know, and what interest is there for him in making such a test? He does not hear afterwards what his results have yielded in the general diagnosis; it must be a loathsome uninteresting business.

Still more important becomes this difficulty in

the hands of the fluoroscopist and Röntgenologist. His method has so many wrinkles and difficulties, that unless he is in contact with the clinic and capable of verifying his findings, correcting his mistakes, he becomes entirely visionary and speculative, and in this way his result is very much less valuable.

Pictures do not lie, we hear say, but they do lie if you do not know the conditions under which they were taken. If it was not for that fact, I think the pictures in which a person is shown, in the movie show, jumping from the river onto the shore would be a fact, while in reality it is a freak of the moving picture, brought about by certain technique.

We see therefore that the disjointed laboratory and expert examinations, of which we are so proud, by using the black on white diagnosis of the laboratory for diagnosis, loses a great deal of its weight. Still consultation and laboratory methods are the best means by which to make a diagnosis. It has been advocated for some time, by men who have seen these difficulties, to use the expression "team work." I personally do not like that term, but I think that the best effort in that direction is brought about by, what I would like to call, "co-operative method of diagnosis."

Individually and alone, hardly any practitioner, even the very experienced, is capable of making a scientific diagnosis. This seems rather harsh on our profession, since it has, with the laity, the reputation of being able to tell in each case what is the matter. It is only in those cases which are clear pictures of pathologic changes, that the experienced man can make positively a diagnosis. In most of the others, he can only surmise it, but not prove it.

In order to be able to come as near as possible to an exact scientific diagnosis, the examinations must be done by experts and one can only become an expert, by constantly working at these methods. By making one or two blood counts a week, one cannot be an expert in blood counting; by making one Wassermann test a month, one cannot become an expert in Wassermann tests. One has to be constantly at it. The expert must control and check off his results by the examinations of the other methods, so that he can find out his mistakes and prove his findings. This is one of the most important points of my paper.

As it is, most of the laboratory experts are

absolutely independent of the clinical and other laboratory experts and they give their findings objectively as they see them. In that way they are hardly ever told of discrepancies which would enable them in future cases to correct their diagnosis and have better results. This is especially true when findings can be corroborated by operations, post mortems or secondary symptoms, or where the findings of laboratories are contradicted by findings of other laboratories.

There are sometimes two or three different possibilities, between which the laboratory men might choose, and knowing a little more about the clinical history, it would lead him to look for other tests or suggest other methods, which might be of value in the diagnosis. This would necessitate that a patient should be examined by the different experts but that these experts should consult with each other. More especially is this true about the Röntgen examinations and those very important examinations by the fluoroscopist.

In the intestinal diagnosis for instance, a fluoroscopist is entirely at sea if he does not know anything about the clinical diagnosis. Some of the medical men, who have sent their cases to laboratories, have allowed the laboratory men to question about the history, but as a rule, the laboratory men abstain from questioning, thinking this is an infringement on the rights of the practitioner, and justly so, because some question, innocently asked, might disturb the entire confidence of the patient in his physician.

It seems to me that there is only one method which leads to a universally satisfactory result. This method, as I have said before, has been called by some "team work," but that is not enough. "Team" means individuals pulling together in one direction, towards one object, but that is not the way a diagnosis should be made. There must be pulling, a pulling apart, a pulling into different directions, and pulling into every direction, in order to unravel the secrets and intricacies of an obscure diagnosis.

For some time past, several years in a small way, we have systematically introduced into our work what I would call a co-ordinate and co-operative diagnosis.

Being aware, and satisfied, that I am not an expert in making laboratory examinations, I have made myself familiar with their possibilities, and with reading of their results as much as possible.

I keep in contact with them as much as my time and understanding of the same allows, but I am perfectly aware that I cannot be an expert in any of these lines. I, therefore, have every case examined in every respect by experts in their lines. They receive as much information about the history and other clinical symptoms as is necessary, but nothing to prejudice them in any of their examinations. They examine individually in their lines and independently, and report their findings.

These findings are reported not so much in writing but they are discussed at a daily conference. In that way, often, new suggestions are made, and findings that may be based upon a wrong perception are ordered made again, sometimes three or four times in order to ascertain whether they were correct.

These daily consultations or conferences are very valuable for every one of these men, and have brought out diagnosis in some of those cases, in which none of us, individually, would have been able to make.

In case of operation, based upon a diagnosis, these experts are called at the moment when their findings can be either verified or contraverted, so that they may either see their diagnosis confirmed or disproved. This is a school for them to make them all the more expert in their diagnosis. If they have made a certain diagnosis a little hastily they will be more careful the next time not to make the same in another case; if they have been corroborated, it will make them enthusiastic and they will look for certain symptoms again.

This system must be organized. It cannot be disjointed and irregular. In order to achieve the best results, it must take time.

Each one of the men must have time enough to make a correct diagnosis. It is required to examine in rotation, sometimes by two at the same time, so that these experts must be in one locality, always at hand. This makes it, of course, difficult for many to employ the method.

How many expert diagnosticians are required? That is difficult to state. It depends upon the individual training and latitude of the field of each one. On the whole, I should think that the following specialties should be recommended in any instance in which a correct diagnosis can be made:

There must be one central person, acting as a

judge and as a sort of a reassembling agency. He must be a man of good logic and experience, must know more or less what can be accomplished by the different methods of examination, must know the value of their results of the different men, and how much he can rely upon them, their meaning and their application for diagnosis. In our organization my brothers and I take his place.

There is a medical man, a man who is familiar with all the methods of percussion, auscultation and palpation, who examines the nervous system, intestinal tract, the heart and circulation system, and makes a general status of the case. He orders such blood and urine examinations as is required, according to the exigency of the case. Sometimes these examinations have to be directed into special investigations, in some instances, a very superficial examination must be made.

At the laboratory for instance, in a suspicion of an ulcer of the stomach or duodenum, a very accurate examination of the feces is to be made for blood, etc. To make this in every case would lead too far.

The examination of blood for instance, if made in every case and in every detail, would require an army corps of people, in a moderate practice, to do the work, besides it would scare and annoy many patients to make examinations which are unnecessary and often painful. Only such examinations are directed by him as appear necessary at the first instance.

These examinations, however, are made by special experts in laboratory. One party examines, for instance, chemically and microscopically urine and blood, another party examines carefully secretions and excretions for bacteria, makes examinations for Abderhalden and Wassermann tests and other tests, if such should be necessary. These laboratory experts are called back again in case their findings do not fit the picture and are requested to examine again and again if such discrepancies require the same.

There is an x-ray department and the man who takes charge of the whole department takes the pictures, but does not develop them, as it requires a specialist again, and therefore the development must be done by other people, who are technicians. This department has either a special fluoroscopist or the department head is the fluoroscopist. He must be a clinician, a **physician** with a great deal of clinical experience, who **also**

must be familiar with the examination of the cases in a clinical way, otherwise his fluoroscope pictures will be of very little value.

It is a mistake to think that any layman, a nurse, a sister or any photographer can be trained to be a fluoroscopist or an x-ray specialist. Only a clinician with a great deal of experience can be a good fluoroscopist. This is a specialty which can lead a clinician or a surgeon very much astray if it is not controlled and checked off by operation. He can produce artificially and on pictures almost anything which is wanted, if he should make use of tricks in photography or fluoroscopy, and, therefore, this specialty requires a very conscientious and good expert if it is to be of value for diagnosis. Most important, however, is that the surgeon should learn to read and interpret findings so that he may be independent and may control the findings of his expert.

The third valuable man is the man who examines the genito urinary sphere—the systoscopist and proctoscopist. To be an expert in this line requires a great deal of experience. Much damage can be done by somebody who attempts this method without the necessary experience and the results, particularly those that should be valuable to the clinician must be of such a nature that one can depend upon him. To catheterize the ureter is a trick which can be learned only by being at it all the time.

The nose, throat, eye and ear examinations require another expert. They are frequently necessary to complete the diagnosis, and it requires an expert who is not too narrow in his views. This is a great danger if the experts are working out of contact with the balance of the diagnosticians. The specialist, be he ever so experienced, after he becomes a specialist has unfortunately severed, in most instances, his clinical associations, in such a manner that he pays more attention to his specialty than to the general clinical aspect of the case. Most of the specialists are imbued with the importance of the manifestations of symptoms in their sphere, and refer a great many ailments and symptoms to these and, therefore, they easily make many a wrong diagnosis. Somebody might have a symptom in the eye, ear or nose which may be a part of a manifestation of a general disease, and still it may not have any causal connection with it,

therefore, only by co-operative diagnosis, is it possible for the specialist to appreciate the symptoms within his special line.

The specialist of the mouth, the dentist, has come to be of importance of late. The throat specialist has led us to see that the tonsils are in many instances the cause of many other troubles. The specialist in dental affairs has cleared up many cases of obscure disease and helped to make a diagnosis in the same.

We see that this association of specialists in different lines, controlled and checked off by somebody who assembles their results and puts them down to their real value, will be capable of making a diagnosis in many instances which a single individual is not capable of making.

We come to a point which is very important and which has been dwelled upon in a lecture here, before the society, a couple of weeks ago in a paper by Dr. Charles H. Mayo. Such diagnosis is not a matter of a few minutes, or even half an hour. They cannot be made in an office as a rule, and consequently they are neglected in many instances or curtailed. They can be made only, as we might say, in a properly adjusted shop or hospital, with all its implements and its whole staff prepared for such examinations. The hospitals, up to this time, unfortunately have not made use of the facilities that the institutions offer to them by association, although, as I will state a few minutes later, the method is very old and used abroad for a long time.

Petty jealousies—an unfortunate attribute of our profession—have kept many good men from pulling together to accomplish excellent results.

It requires time to make a diagnosis and, therefore, it is necessary that patients with obscure ailments, should be admitted to these institutions for a few days, for the purpose of diagnosis. It is our experience, that in most of these instances, we require from two to three days, in some instances a week or even longer to make a proper diagnosis. Some examinations have to be done twice and three times, according to the result of our conferences.

We have, on the average, a number of cases for examinations only, at the hospital.

This method has many advantages which cannot be appreciated until one has made use of it. The practitioner, as a rule, who is confronted with the difficult cases, sometimes will not be able

to tell what specialist he should consult in case he wants to consult one. It will often require two and three specialists, who in turn will give him their opinion for which they will charge. Naturally such multiple examinations are very expensive. If it yields a good result, it will be satisfactory; if it does not, it will make the patient and the doctor disgruntled.

I have seen cases in which I was told that a man has seen, in succession, a number of specialists. For instance, a man who came to me with some trouble culminating in the loss of vision, following an injury. His physician was puzzled. He had seen a nerve specialist who sent him to the roentgenologist, who again after taking two pictures of the skull, without knowing much of the case, sent him back to a medical man, who again sent him to an eye specialist. This eye specialist referred him to a surgeon, who found it necessary to send him back again to a neurologist, and to his roentgenologist in order to get a better diagnosis. After that he called on me, and when I suggested this kind of co-operative diagnosis, after some hesitation, he said, "I have paid so and so many times \$25.00 for each of these examinations; could I not save some money by showing you these pictures and giving you the opinion of these men?" The expense of his examinations was exorbitant and had absolutely no value. A co-operative diagnosis would have spared the man time and money.

The method of this co-operative diagnosis, as I said before, is very old abroad. At the clinics of the universities of Europe, especially in Austria and Germany, the professors make use of all the expert opinions of all the co-ordinate clinics of the universities free of charge, for this co-operative diagnosis.

When I was a student and later while working in a clinic, we called for the examination of our cases in our department the first assistants of the other clinics, who were only too anxious to learn and study in our department the diagnosis, and in their written opinions we had often all the detailed examinations of our cases. They lacked, however, one very important thing, in which I think, the method I have described before, excels, and which we are using, namely, the conferences and consultations, and they are the leading spirit of the diagnosis. It seems to me that in future medical diagnosis this method will play a very important role.

SOME NEW AND NONOFFICIAL REMEDIES.*

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CHICAGO.

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In these days of the automobile, the aeroplane, and the submarine, rapid progress does not surprise. Few, however, even of the medical profession realize what great progress has been made in the materia medica even within the last few years. The average practitioner, I fear, has been too busy with practice to appreciate at their full value the improvements that have been made within the last decade. Furthermore, the propaganda against proprietary medicine, necessary as it has been, has brought with it the danger of throwing out the grains of value with the bushel of chaff.

Having been invited by the members of this society, who evidently appreciate the progress that has been made, to speak on the newer remedies, it seemed to me that the best way of presenting them would be to call attention to some of those agents, contained in "New and Non-official Remedies,"¹ that seem interesting to me or that I am acquainted with, eliminating from this discussion animal extracts, sera and vaccines, as well as those agents that are too well known to require special comment here, as e. g., phenolphthalein, theobromine, epinephrin or salvarsan.

NEW REMEDIES CHARACTERIZED BY ELIMINATION OF BAD TASTE AND OF LOCAL IRRITANT ACTION.

One of the most prominent tendencies of the newer materia medica lies in the direction of eliminating bad taste and local irritant action.

No longer is it necessary to offend the taste and to derange the stomach by giving, as anti-diarrheal, tannic acid or one of the vegetable astringents. The tannate of albumin—*tannalbin*—is tannic acid, whose affinity for proteids has been satisfied before it is put into the stomach, thereby eliminating action upon this organ. It reaches the intestine in probably the same form in which tannic acid given uncombined would reach it, namely in combination with proteid, from which combination the tannic acid is slowly split off on digestion of the proteid. The

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dose of this light brown, odorless and tasteless powder is rather large—1 to 4 gm. (15 to 60 grains) for adults, and even infants may get as much as 0.5 gm. (8 grains). It is so inoffensive that it may readily be administered to the little ones mixed with food.

Creosote carbonate is so much easier to take than creosote, and acts like it, excepting as far as influence upon the stomach is concerned, that it ought to be generally preferred to the crude drug. It is an excellent expectorant in bronchitis with profuse secretion and in tuberculosis, given in drop dosage progressively increased up to 30 or more drops three times a day after meals; best administered shaken up with milk, coffee or wine.

Betanaphthol benzoate probably deserves to supersede betanaphthol as an intestinal antiseptic, at least in pediatrics, as it is insoluble until it arrives in the intestine, therefore is tasteless and free from irritant action upon the stomach. I have seen betanaphthol produce vomiting in a child. Betanaphthol benzoate may be given to adults in 0.5 gm. (8 grains) doses; maximum single dose is placed at 1 gm. (15 grains) daily; maximum daily dose at 4 gm. (60 grains). To children it could be administered in the form of sweet tablets.

When iodides disagree with the stomach, we may entirely circumvent action upon the stomach by giving *sajodin*, which is an insoluble soap of an iodized fat that becomes digested in the intestine and after absorption yields iodide to the system. Of course, it is slower in developing its action than is potassium iodide and it probably is also feebler, containing as it does only one-third as much iodide. However, the ease with which it may be given compensates for the latter defect; and, by giving two or three times as much as we would give of the iodide, we can obtain the same results, even to the extent of producing iodism. Have used it for the last few years, rather extensively and with satisfaction as an expectorant in children, to loosen up a tight cough, giving it in doses of 0.06 gm. (1 gr.) every 2 to 4 hours in form of sweet tablets, which are as pleasant as real candy (Fantus²).

Am less certain of the value of *Sabromin*, the bromine compound analogous to sajodin, it having been shown by Ellinger & Kotake³ that its distribution in the system differs from that of

bromides in that it accumulates in the fatty tissues, while bromides accumulate in the fluids of the body. It may, however, be used with expectancy of some results when bromide treatment is indicated but cannot be employed in other form because of gustatory or of gastric hypersensitiveness on the part of the patient. Have a number of nervous patients who have been taking it for months or years in doses of 0.30 to 0.60 gm. (5 to 10 grains) three or four times daily with results satisfactory to them. In one of these patients the same dose of potassium bromide produces coryza, while she can take sabromin without ill effect.

Aspirin, or acetylsalicylic acid, is probably too well known to require discussion here. *Salophen*, however, which is a salol-like combination of phenacetin and salicylic acid, deserves to be better known. As it is broken up in the intestine, it has the analgesic and antipyretic properties of its constituents with the additional action of an intestinal antiseptic. It is at the same time free from taste and from tendency to produce gastric irritation, which cannot be said of aspirin. Its dose is from 0.3 to 1 gm. (5 to 15 grains) in powder, cachet or capsules. Have used it extensively and with satisfaction in dose of 0.06 gm. (1 grain) every two hours in form of sweet tablets (Fantus, l. c.) in the minor fevers of childhood. In cases in which the depressant action of the phenacetin in the before-mentioned compound may seem objectionable, *Saloquinine*, a salicylic ester of quinine, may be used in the same manner and dosage.

Our old friend quinine is no longer one of the most difficult medicines to give to children. Euquinine, meaning "good quinine," has been called the "children's quinine"; but *aristoquin* is, as its name indicates, better, i. e., less bitter still. It is quinine carbonate, so tasteless that it is easily disguised, yet sufficiently absorbed to give quinine action (Dreser⁴). One grain of it is easily given in form of a perfectly delicious 5-grain chocolate tablet (Fantus, l. c.), especially if a trace of sodium bicarbonate is added. Have used it in this form with some satisfaction in a number of cases of whooping cough.

NEWER REMEDIES CHARACTERIZED BY GREATER ACTIVITY AS COMPARED WITH TOXICITY.

Still more important are the results of modern research on drugs that lead to greater safety in

medication. To increase the distance that separates therapeutic from toxic dose means increased efficiency, as well as a greater safety.

Veronal, probably now the most popular of all hypnotics, acts in dose of 0.30 to 0.50 gm. (5 to 8 grains). Its fatal dose is about 5.0 gm. (75 grains). *Adalin*, which is much less soluble and for this reason must be given about two hours before going to bed, acts as hypnotic in doses of 0.5 to 1.0 gm. (8 to 15 grains), but has failed to kill in a dose of 17 gm. (255 grains), which was taken with suicidal intent (Hirsch-Ge-reuth⁵). This dose caused deep sleep for three days and was followed by complete recovery in five days. *Adalin* is therefore a good hypnotic, but not suitable for suicidal purpose. That it is, however, not perfectly harmless—no active hypnotic could be—is shown by the case reported by Siebelt,⁶ in which 2 gm. of *adalin* given to a healthy man 37 years old produced delirium, loss of consciousness, rapid respiration, and small quick pulse, followed by recovery.

Particularly marked has been progress in connection with local anesthetics (Kochmann⁷), among which *novocain* seems to be at present the agent of choice. It can be boiled without deterioration, is free from irritant action in solution up to 5 per cent. A solution of 10 per cent. strength causes slight irritation, just as any other salt solution of that strength would. Its toxicity is remarkably slight. As much as 200 mls.* of a 1 per cent. solution containing 2 gm. (30 grains) has been injected without disagreeable results, excepting occasional vomiting. It is generally used in solution of 0.5 and 2 per cent. The main disadvantage of this anesthetic is that its duration is decidedly shorter than that of cocaine. The period of available anesthesia can, however, be prolonged by the addition of epinephrin. It has furthermore been shown (Hoffman⁸), that the addition of potassium sulphate increases the anesthetic power of *novocain* by about 75 per cent. without adding to the toxicity, so that the following solution may be recommended:

R

Novocainae	0.25-0.50 gm.
Potassii sulphatis	0.46 gm.
Sodii chloridi	0.72 gm.
Aquæ q. s. ad	100.00 mls.

Just before using add 12 drops of 1 pro mille epinephrin solution.

Quinine and Urea Hydrochloride is a remarkably soluble quinine combination, dissolving in its own weight of water. It is furthermore remarkable in producing a most lasting anesthesia, which in some cases has continued for several days. It is also the best salt for subcutaneous administration of quinine in malaria. Its chief disadvantage is its tendency to produce fibrous induration, which it is claimed can be avoided by using solutions as dilute as 0.25 per cent. For application to mucous membranes it is used in solutions of 10 to 20 per cent.

Anesthesin is a local anesthetic likewise quite free from toxicity, that because of its insolubility cannot be used by injection, but which for the same reason has a very prolonged effect when used as a dusting powder in the treatment of painful wounds and ulcers, either pure or diluted. It is much less irritant than orthoform. This remedy is also useful in the treatment of gastric pain, especially that due to ulcer and cancer, as well as for the relief of vomiting in doses of 0.3 to 0.5 gm. (5 to 8 grains). Sweet tablets of *anesthesin* (Fantus²) slowly dissolved in the mouth produce a well defined and rather lasting anesthesia of the mouth and throat, an action that may be of value in the treatment of sore throat.

In the treatment of indolent ulcers, *Scarlet red* is of decided value. When the milder stimulants to healing, such as balsam of peru, prove insufficient, this irritant is likely to accomplish satisfactory results in stimulating proliferation of epithelial cells. One must be careful not to use it very freely. It should be applied thinly over the surface of the ulcer, unless the ulcer is a large one, when it should be applied to the epithelial margin only. It may be left undisturbed for several days, when the application may be repeated. Continuous application for many days causes inflammation of the ulcer. Careless application, so that some of it was smeared over healthy skin, has produced eczema in a varicose leg of one of my patients.

The group of coal tar analgesics has been enriched by the introduction of *pyramidon*. It is an antipyrine derivative, soluble in water, almost tasteless, acting three or four times as strongly as antipyrine, and while slower in producing the

*Equivalent of cc. to be used in the new Pharmacopœia.

effect, is more prolonged in its action. It is active in doses of 0.25 to 0.30 gm. (4 to 5 grains), its maximum doses being 0.5 gm. (8 grains) per dose or 1.5 gm. (23 grains) per day.

Erythrol tetranitrate is a vaso-dilator of more prolonged action than nitroglycerin, hence more useful than the latter as prophylactic for anginal pain. Its dose is 0.03 to 0.06 gm. (0.5 to 1 grain). It should be prescribed in form of 0.03 gm. (0.5 grain) tablets, the only form in which it is found upon the market. As the action lasts about four hours, the doses should be repeated at such intervals.

Papaverine, one of the opium alkaloids, not yet introduced into N. & N. R., has of late received considerable attention in European literature as a result of pharmacologic studies most especially by Pal⁹, who found that it causes relaxation of involuntary musculature without producing narcosis. It has in consequence been used as antispasmodic in colics of various kinds, gastric, intestinal and uterine, to prevent threatened abortion, as well as for lowering of blood pressure. It is used as the hydrochloride in doses of 0.03 to 0.06 gm. (0.5 to 1 grain) two or three times a day. Holzknacht and Sgalitzer¹⁰ have shown by means of Roentgenologic examinations that papaverine in doses of about 0.06 gm. (1 grain) may be used in differential diagnosis between pylorospasm and pyloric stenosis, as it removes the delay in evacuation due to spasm, while it increases the delay due to pyloric stenosis, just as it increases evacuation time of the normal stomach by producing muscular relaxation. This, of course, means that it is a valuable remedy in the treatment of pylorospasm.

SOME NEWER SPECIFICS.

The most important recent contribution to therapeutics, however, has been the development of some new specifics, to which I next wish to call attention.

Salvarsan has been heralded sufficiently to be passed with mere mention. It may not be sufficiently well known, however, that *Neosalvarsan* is a much more soluble form of salvarsan, which lends itself so readily to administration that it can be given to office patients. As the new form is somewhat weaker than the old, somewhat larger dosage is necessary. It is marketed in sealed tubes of 0.15 gm. each, which is consid-

ered a child's dose, and in multiples of that quantity up to 0.9 gm., which is the maximum adult dose. The average dose for men is 0.75 gm., for women 0.60 gm. Even the largest dose may be injected dissolved in 2 mls. of water, which should be distilled water, freshly boiled and permitted to cool. This is poured into the ampule in which the remedy is furnished, and solution is favored by stirring with the glass rod provided with the remedy; having, of course, previously sterilized the glass rod by heating it and then permitting it to cool. The solution is then drawn up into an all-glass syringe. Having made the vein prominent by constriction and applied tincture of iodine to the place of puncture, the needle is introduced into the vein. The sign that the needle has entered the vein is the appearance of blood in the syringe. Now the constriction is loosened and the injection given. Should the patient complain of "burning," the injection should at once be stopped and the needle be withdrawn, as it means that the fluid is being injected outside of the vein, which will later produce pain and infiltration. The needle should then be introduced into another vein. (Seyfarth.¹¹)

Emetine (p. 107), one of the alkaloids of ipecac, has been shown by Vedder¹² to have a specific action against amebæ, an observation that was seized upon by Rogers¹³ to explain the anti-dysenteric value of ipecac, and to endeavor to obtain better results by the subcutaneous administration of the alkaloid, thereby circumventing the difficulty of having the medicine retained by the stomach. Using 0.03 gm. (0.5 grain) dose, Rogers and many others have obtained remarkable results in amebic dysentery and even in amebic liver abscess in its early stages. Most recently, since it has been claimed that pyorrhea alveolaris is due to amebæ, emetine has been tried in the treatment of this condition with alleged good results, even when given as claimed by Bass and Johns⁴ in form of Alcresta ipecac, which has recently been accepted by the Council on Pharmacy and Chemistry, but is not yet to be found in N. & N. R. (1915). Alcresta ipecac is a combination of the ipecac alkaloids with an especially prepared fuller's earth, which was first made by John Uri Lloyd at my suggestion. This, like other alkaloidal fuller's earth compounds, is quite tasteless and insoluble in acid liquids; it

may therefore be expected to pass through the stomach without being acted upon and without acting upon it. Hence, the emetine combination ought to be non-emetic, which it proved to be. As the fuller's earth combination is decomposed by alkalies, I hoped that it would unfold its activity in the intestine. In this I was disappointed, as the compound proved quite inactive even when given in enormous doses to animals. It likewise seemed to be inactive against infusoria. I therefore cannot help being somewhat skeptical regarding Bass and John's (l. c.) results with *Alcresta ipecac*, though, of course, it is not beyond the range of possibility that these amebæ may be so susceptible to emetine as to succumb to the trace of emetine liberated from this compound in the intestine.

Atophan is a most interesting agent of apparently specific action. It has the power of greatly increasing the elimination of uric acid. Though salicylic acid increases the elimination of uric acid probably in a similar way (Frank & Pietrulla¹⁵), it is overshadowed in this power by the quinolin carbonic acids, most especially by the phenyl combination (Nicolaier and Dohrn¹⁶), to which the name *atophan* has been applied. This compound has been shown to increase the elimination of uric acid by 30 to 300 per cent. That this increased elimination is not due to an increased production has been shown by the fact that there is a diminution in the uric acid content of the blood (Bass¹⁷), and that phosphoric acid elimination is not increased, which would be the case if there were increased destruction of nucleo-proteids. Its action, as far as uric acid metabolism is concerned, seems to be limited to transferring the uric acid from the blood to the urine, acting probably upon the kidney tubules (Weintraud¹⁸, Haskins¹⁹). The increased elimination lasts six to eight hours, is followed by a period of decreased elimination of uric acid, and finally by a gradual return to the normal. As a quinoline derivative, it has in addition antipyretic, analgesic and antiphlogistic properties; and some of the favorable clinical results obtained from it in gout, in rheumatism, and in a variety of other inflammations may have been due to these actions (Starkenstein & Wiechowski²⁰). *Atophan* is especially indicated in acute gout. It often checks the attack completely within a few hours, if given at the very begin-

ning of the paroxysm. If given for prolonged periods, in doses of 0.5 to 1.0 gm. three times a day, it prevents attacks; but it seems to be of little value for the removal of tophi. As the urine eliminated under its action is so rich in urates as to be turbid when passed or to become so shortly thereafter, it is contraindicated in nephrolithiasis. For the same reason it is necessary to give, during its administration, large quantities of water, to which one-half teaspoonful of baking soda should be added several times daily.

Atophan is an almost insoluble substance of biting taste which is perhaps best dispensed in 0.5 gm. tablets, that are made so as to disintegrate readily in water. One or two of these may be used three times daily after meals. The chief untoward effects noted under its administration are abdominal pain, diarrhea, and skin eruptions resembling those produced by antipyrin. *Nova-tophan* is an improved, practically tasteless modification of *atophan* claimed to have the same activity.

A new near-specific that has not yet been included in N. & N. R. is *optochin*, "best quinine," believed by its namers to possess the virtues of quinine to a superlative degree. The chemical name of this substance is ethylhydrocuprein. Introduced as a specific in pneumococcus infection by J. Morgenroth²¹, who showed that it is able to save mice from death by fatal doses of pneumococci, it was at first found disappointing in human pneumonia, perhaps because too much was expected of it. Since then it has been shown by quite a number of observers that, if perhaps not absolutely specific, it is still the best remedy yet found against pneumococcus infections. It seems to be most valuable in pneumococcus conjunctivitis, especially in *ulcus serpens corneæ* (Goldschmidt²², Schur²³). Leske²⁴ claims that it gives specific results in pneumococcus sore throat when given in 0.5 gm. (8 grain) doses in cachets three times daily. A. Fraenkel²⁵ reports 13 cases of lobar pneumonia with but one death. In the others, improvement could be observed within 12 hours; crisis or lysis occurred on the second to fifth day. To get best results, early administration is required. The case that died did not come under treatment until the fifth day. It is claimed to exceed quinine in antimalarial power. The chief untoward result obtained from it has been transient amblyopia, to avoid which

the daily dose should not exceed 1.5 gm. (23 grains). In these days of superdreadnoughts, shall we yet have a superoptochin?

In conclusion, I wish to call attention to the fact that, while no claim is made that all the agents described in it are valuable, the 1915 edition of "New and Nonofficial Remedies" contains authoritative information on a great many other useful remedies, information that cannot be found anywhere else. It is a book no progressive physician can afford to be without.

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TONSIL TECHNIQUE.

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LA SALLE, ILL.

The tonsils offer many phases for consideration. In this paper we will eliminate the much-mooted matter of function, also neglect pathology and pathologic physiology, assuming as a premise that there are tonsils which should be removed.

May we first clearly differentiate tonsillectomy from tonsillotomy?

Tonsillectomy means an enucleation, *i. e.*, removing the tonsil in its capsule.

Tonsillotomy refers to an obsolete, irrational, unskilful procedure of amputating the protruding portion of hypertrophied or hyperplastic tonsils. There is no reason for doing a tonsillotomy and

every reason for not doing it. Nearly every tonsil that needs operation contains more or less pus. By the very nature of the tonsils they can free themselves to a greater or less degree of accumulations. When this function becomes impeded absorption of toxins and bacteria to the venous and lymph streams is begun. Now, when the top of a tonsil is amputated there is a formation over the cut surface of a dense resistant scar tissue acting the same as a sear. It seals that surface tight. Crypts that formerly could be emptied are converted into pus pockets, abscesses, if you please, without drainage. The result is an increased systemic intoxication with a possible added bacteremia. Diseased lobes, tags and stumps remaining defeat the whole object of the operation.

Tonsillectomy is a major procedure and when done well is not easy. It demands some previous training and average skill and judgment. That the work is frequently bungled is evidenced by the vast number of deformed fauces, hypertrophic tonsil stumps and tags. An abdominal error can be sewed up; throats are open for inspection. The most experienced operators have "bad luck" occasionally. However, should one have a series of failures in which the pillars are mutilated, in which there are diseased tags or lobes of the tonsil left, or in which all cases give considerable bleeding, it is *prima facie* evidence of wrong technique.

What constitutes good technique? Any procedure which will enucleate the tonsils with the least damage to the pillars and which will give minimum bleeding and no after bleeding.

In an article by Freer last year he points to two structures which each tonsil operator should bear in mind. As the tonsil lies in its fossa between two pillars, budging over the superior pole from pillar to pillar will be found the plica semilunaris. H. W. Boettcher of Chicago dubbed this structure the prepuce of the tonsil. Under this prepuce lies the upper lobe which frequently extends well up into the soft palate. In doing an enucleation the dissection is best started by puncturing the plica. The superior pole is then easily freed and shelled out first. Allowing this portion of the tonsil to remain, as frequently occurs, walled in by the pillars and covered over by the plica, the cut end soon is sealed by scar tissue. This is the usual site of peritonsillar abscess. A diseased sealed in upper tonsil lobe is not an infrequent nidus, even though the rest of the tonsil is out.

At the lower pole of the tonsil is a similar structure bulging from pillar to pillar over the tonsil, known as the *plica triangularis*. At about the junction of the middle with the lower third of the pillars this structure is encountered. One will note that the attachment of the structure to the anterior pillar is very firm and offers considerable resistance. To secure the lower pole of the tonsil it is either necessary to cut the plica from the pillar or dissect the tonsil free from the plica. Freer recommends this later procedure to save the plica as an epithelial graft to hasten the healing of the emptied fossa.

In order to demonstrate these plicæ the tonsil must be picked up from its bed and these membranes put on a stretch. The difficulty encountered with a tenaculum forcep for this purpose is marked in submerged tonsils. The prongs invariably pierce the pillars. It then becomes difficult to differentiate landmarks. For large protruding tonsils the tenaculum offers no disadvantage. For picking up the tonsil Boettcher devised a two-pronged right-angled hook. By piercing the tonsil with the hook in its upper third getting a good bite, then giving the hook a quarter turn the tonsil is easily lifted from its bed and the upper plica put on a stretch. In this position the plica is seen as a pale pinkish membrane and is easily punctured for starting the dissection. In using the hook the operator should not use too much traction.

With the plica cut and the upper pole exposed the tonsil can be shelled out complete in its capsule with the finger, so loose are its attachments to the fossa except in old chronic cases. Boettcher recognized this fact and devised the curved blunt pointed tonsil scissors with semi-sharp outer edges. After lifting the tonsil from its bed with the hook Boettcher makes a clip in the prepuce with the scissors, after which they are closed and used as a blunt dissector shelling the tonsil free from the pillars. The reasons for blunt dissection are three fold.

First.—Ordinary tonsils can be shelled out with the index finger and with a blunt edge one also keeps between tissue planes.

Second.—By virtue of working between tissue planes there is a decreased danger of damaging the pillars or cutting too deeply.

Third.—By laboratory experiments and by actual observation blunt instruments cause less

bleeding than sharp ones. With a blunt dissection the field is less likely to be obscured by blood.

When the tonsil is free from its bed it is an easy matter to place a wire snare and crush the tonsil from its base. Crushing is preferred to cutting because of less hemorrhage.

In placing the snare there are two factors to keep in mind. One is to gently rock the wire, while retracting the tonsil with the hook, so that it falls between the tonsil and pillars and does not incorporate the edge of either pillar in the grasp. The other factor is the uvula. The safest way to place the snare is to direct the stylet into the apex of the fossa when the loop will be easily worked under the pillars and the uvula is not likely to be caught, but, at the best this appendage has a peculiar faculty of getting entangled. It probably does no harm to snip off a piece, yet it is doing that which is not supposed to be done. To overcome this, Boettcher devised his uvula holder with which the anesthetizer with his free hand gently retracts the uvula from the field which also aids the operator to locate and pierce the prepuce. There is a little trick on the part of the anesthetist in managing the holder, whereby he places the pillars on a stretch yet does not tear the uvula or get in the way of the operator. One must be sure the uvula holder is attached when closing the snare.

It has been learned by bitter experience not to start the second tonsil until the bleeding from the first is checked for the reason the field is hidden, the patient coughs, gasps and gurgles, making it difficult to pick up the tonsil alone or dissect it free without doing damage.

There is no doubt that the majority of deformed fauces resulting from tonsillectomy is due to the operator attempting to work in a bloody field.

From observation of over 2,000 tonsil cases the time to stop bleeding and prevent further trouble is while the patient is still asleep on the operating table. At this time it is easy, later it is more difficult. At the Illinois Charitable Eye and Ear Infirmary, Chicago, where there are from 4 to 14 tonsil cases operated on every day, it is an unwritten law of the institution that each case must be dry before being put to bed. In over 14 months of service at this institution the writer knows of but two cases in that period that needed

any attention for bleeding and in these the bleeding was no worse than that the average operator pays no attention to.

In any other branch of surgery a bleeding point is immediately clamped and tied off. With a curved pair of artery forceps it is not difficult to pick up a bleeding point in the tonsillar fossa and if necessary slip a loop of ligature over the forceps and tie it.

Adults invariably bleed more than children because of greater vascularity and dilatation from chronicity; also that the amygdalae are often bound down more securely from scar tissue necessitating more trauma for enucleation. It is not unusual to place three or four hemostats to hold back bleeding in adults, but this procedure insures no bleeding and scarcely any oozing after return to bed.

An occasional source of bleeding is found from tags left attached to the pillars. Too much traction on a rotten friable tonsil is most certain to lacerate it so that portions fail to be secured in the bite of the snare wire. These tags should be picked up with the tonsil hook and bit off with the snare for two reasons. They invariably ooze for some hours and also are quite likely to be diseased.

Anomalies are a source of danger. The tonsil gets its blood supply from the ascending palatine (branch of facial) tonsilar branches of the facial, ascending pharyngeal (branch of exterior carotid) and dorsalis linguae (branch of lingual). The ascending palatine is in direct relation with the tonsillar fossae. It is not impossible for this vessel to be unusually large nor is it impossible for the ascending pharyngeal, facial or lingual to be out of their usual course. It is not at all unusual for the tonsillar arteries to be dilated. The carotid may be out of its course or an enlarged tonsil may push into relation with the carotid sheath. An example of each has come within the writer's observation. A sharp dissection with knife or scissors in a bloody field would have been hazardous.

For the last few years one hears much about the Sleuder instrument and operation. The writer has had the opportunity of using this instrument and to observe the results of the procedure in the hands of experts with the conclusion that unless one has done hundreds of Sleuder-

izations he is totally unfitted for the operation. There are so many damaged pillars that the instrument has been dubbed the pillaratome. Large protruding loosely attached tonsils offer but little difficulty, the submerged, cicatricial, bridged over or bound down type is where the damage is done even by those with a vast experience with the instrument.

It is quite uncalled for before this association to discuss further the tonsillotome except to again bring to mind a recognized fact that when the tops of diseased tonsils are amputated the resulting cicatrix pens up pus pockets that formerly could empty themselves. In short tonsillotomy makes a bad matter worse.

In the same category falls the tonsil punch which usually accomplishes the same unsatisfactory result of tags, stumps and penned up pus pockets for future trouble.

One can hardly discuss an operation without a word about anesthesia. If there are no contraindications the patient should be anesthetized to a point of abolition of pharyngeal reflexes. With these abolished the operator can do the work in half the time with no damage and less danger than when the patient is half down.

In those cases that need tonsillectomy but present absolute contraindications to general anesthesia we have to resort to cocaine and its derivatives. Injection of cocaine is perilous. Painting the pillars with a 10 per cent. solution and then injecting the pillars with 0.5 per cent. novocain combined with a little adrenalin gives very good results.

To epitomize.—The tonsils, if operated on at all, should be enucleated in their capsule.

Enucleations should be done by working between the tissue planes, separating the capsule of the tonsil from its bed.

Keeping between the tissue planes is more easily accomplished with a blunt instrument than with a sharp one.

Any continued bleeding is dangerous and should be prevented. Tonsil cases sometimes bleed alarmingly and dangerously.

All alarm and danger are reduced by placing hemostats on bleeding points at the time of operation.

THE VALUE OF X-RAY EXAMINATION IN PULMONARY DISEASE FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

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The conservative physician and surgeon asks the question "How accurate or how reliable are the findings obtained by x-ray examinations of the pulmonary areas?" He also asks, "What lesions can be demonstrated by this method of examination?" There are many progressive diagnosticians who wonder how far they may go in depending on this newer method of physical examination. There are extremists who go too far in their expectations, as well as those who are unconvinced of its value, believing in most instances, that the actual knowledge gained is insufficient to warrant its use as a routine procedure in all of their cases in which pulmonary changes are in question. There are still others who feel that their fingers, ears and eyes are all that they need in detecting abnormal lung changes, so that the x-ray examination is superfluous and that there is no need to send their patients to the roentgenologist who so often refutes their findings. Others make extended use of this aid and include it in all complete examinations of their pulmonary cases.

There are many careful and painstaking physicians who have had the experience in certain of their cases of observing a great discrepancy between their physical findings and the evidences obtained on the x-ray screen and plate, and this in spite of every effort to detect abnormal breath sounds, to elicit percussion notes, etc., in a patient whose complaint directs particular attention to the lungs. They may have failed to find any signs that would indicate definite pathological changes, so that their surprise is great when abnormal shadows are noted which indicate lesions of the pulmonary structures. The report received from the x-ray examiner in some of these cases is difficult to believe, particularly in some of the supposedly negative cases, when it is stated that "marked evidence of fibrous tissue increase with small cavities, calcified glands, etc., is present." When such an experience occurs to the careful diagnostician he wonders if the

x-ray evidence is reliable, but on further study learns that abnormal shadows occur only when increased tissue in the lung structures is present, and, the normal appearance being known, that pathological changes can be detected with positiveness. Several such experiences may serve to increase an already present skepticism, but if partially convinced, he begins to doubt his own ability to discover the actual lung condition present in these border line cases. If he is open-minded in his investigation, he learns that the x-ray examination is of distinct value as an aid to him in his physical diagnosis of the lungs.

The physician who refers his patient to the roentgenologist asks the question, "What procedure is regarded as a competent and thorough x-ray examination of the lungs," "Is the ordinary 'x-ray picture' sufficient for a diagnosis?" The answer to this may be stated to be "roentgenoscopic (commonly called fluoroscopic) and roentgenographic (incorrectly termed variously radiographic, skiagraphic, etc.), the roentgenograms to be made stereoscopically." Of the two forms just mentioned one supplements the other, some of the points of diagnostic importance being determined by the screen examination, while other points are obtained by inspection of the plates. It may be stated that a complete x-ray examination of the pulmonary areas has not been made unless the case has been studied by both the screen and the plate. There are certain points which no roentgenogram will tell the diagnostician, such as the action or excursion of the diaphragm or the aeration of the apices, etc., whereas there are other points that do not permit of exact interpretation on the screen, such as a slight infiltration in the hilum, etc.

Roentgenoscopic examinations should not be undertaken until certain precautions have been observed to protect both the examining physician and the patient. Special apparatus, which is so constructed as to minimize the danger of excessive x-ray exposure by a plentiful use of sheet lead around the x-ray tube, is necessary. A vertical roentgenoscope of proper design will enable the examiner to freely move the x-ray tube and the screen in vertical and horizontal directions to any part of the thorax and is provided with adjustable diaphragm shutters to narrow the field of illumination for the minute study of small areas of the lung.

*Read before Chicago Medical Society, Nov. 3, 1915.

The majority of pulmonary cases are examined in the upright position, this being adapted to most of the conditions that are encountered. At times, however, it is necessary to make use of the horizontal posture, as for instance, when patients are very weak or are unable to stand.

Stereoscopic roentgenograms are to be preferred to the ordinary single plate which registers merely flat projection shadows. The stereo method is superior in that it brings into proper position and relation the various pulmonary structures which cast their shadows on the plate and thus a more correct view of the lesion is obtained. (In this connection it should be noted that the tube should be shifted along the spine, not across it as is the usual practice.) While the stereoscopic method is superior to the ordinary single plate, it is true that some cases can be correctly diagnosed by the latter, but the double plate should be the rule. Automatic x-ray plate changing devices and tube shifters and the use of modern high powered generating apparatus with fast plates, now enable one to make both exposures of a stereoscopic set within the total elapsed time of one second. Under such conditions resulting shadows of the thoracic structures will be clearly defined and will be seen without the blurrings so often noted on the average lung plate.

The thorax as seen on the x-ray screen in the antero-posterior direction brings into view two bright areas, the right and left lungs, and a dark shadow between them, the latter representing the heart and the mediastinum. For descriptive purposes in diagnostic reports the lung fields may be subdivided into the apices, upper and lower lobes, the costo-phrenic angles and the hilum shadow. Since the advent of the x-ray, the normal lung has been studied by many investigators, and their conclusions are drawn from the findings of many series of normal cases carefully gone over by physical examination and pronounced to be without change. The contributions of Walsham, Williams and others gave us the foundation upon which later work has been done, the recent work of Dunham deserving commendation for being very thorough, although the work of the pioneers in pulmonary roentgenology still stands substantially correct as given by them. They have taught us that in the normal lung, the apices and the peripheral areas contain

practically no shadows at all, and that as the hilum or root of the lung is approached, shadows are present which increase in size and density as we near the mediastinal area—these shadows being due to the numerous blood vessels, lymphatics and bronchial structures, all of which branch and ramify, frequently crossing one another, thus multiplying the density of the shadows. The normal diaphragm presents a smooth, sharply defined, rounded outline with the convexity directed upwards into the lung fields, the left diaphragm being at a lower level than is the one on the right side. Normally both costo-phrenic angles are very clear and are easily demonstrated on forced inspiration. This condition of the normal lung shadows has been confirmed by post-mortem examinations and by dissections carefully made as well as by x-ray studies of injected lung specimens filled with opaque media.

Regarding the information obtained on x-ray examination of the lungs, Crane, in a recent contribution on the subject, said, "It thus became apparent that until the x-ray was used the real status of the average healthy man was unknown. In cases of pulmonary disease also, the x-ray enables the examiner to detect infiltration, consolidation, cavity, enlarged, inflamed, caseated or calcified glands, peribronchial inflammation, bronchiectasis, infarct, abscess, inhesions, fibrosis, pneumokoniosis, pneumothorax and fluid in the plural sack whether free or encapsulated. The location and extent of these lesions may be defined by the x-ray with a certainty and rapidity beyond the power of the physical examination to maintain. The plate remains an unimpeachable record for reference or for comparison of cases."

One would be unwise to be swayed by the over-enthusiastic x-ray worker who makes extravagant claims for the infallibility of this method of diagnosis or by those who make statements to the effect that the x-ray is all sufficient in lung examinations. On the contrary, this method occupies no niche of infallibility nor does it displace other physical signs; it must be considered with them.

Having learned to know the appearance of the normal lung as revealed on the x-ray screen and plate, we find that certain pathological changes are demonstrated by departures and variations of the normal shadows. These changes are recognized by characteristic appearances of the lesion

which, in most cases, attacks the tissues in a different manner from other lesions. These abnormal shadows may range from a transparency, indicating a presence of air, to a density, signifying a more or less solid mass, in the shadow of which all usual lung structures may be obliterated.

Let us consider the various kinds of shadows found on the screen or plate and learn what each one indicates.

A transparent area means air to a greater or less amount according to size, position and delimitation of same; thus, a very large transparency when located on the outer side of the lung area denotes a large pneumothorax. In this case the edge of the more or less collapsed lung is seen crowded against the heart and mediastinal shadows sharply defined, and at times the shadows of the different lobes are easily detected. A small pneumothorax may be found anywhere from the diaphragm to the apex. This may occur on the anterior or posterior side of the lung, in which the transparent area contains some lung markings. A small area of transparency which is centrally placed and which has a denser shadow surrounding it, indicates a pulmonary cavity of small extent, the ring like density signifying infiltrated connective tissue. If a large cavity be present it is often less well outlined than a small one, but their hollow nature is plainly to be seen, particularly when the shadows are viewed by the stereoscopic plates. A very small transparency denotes a dilated bronchus or it may be a cross section of one of the vessels seen on end view. If many small transparent areas are present an emphysema is indicated particularly if these are seen to be bilateral. If the tissues surrounding a transparent area be infiltrated with calcium deposits, an especially well marked outline, ring like in character, will result. A cavity that is nearly full of fluid material will be recognized by the dense shadow below a transparent area whose lower border will be a horizontal line; this line will be seen to remain horizontal when the patient bends to the right or to the left, the transparency representing an air bubble floating on top of the fluid. Hydro- and pyopneumothorax are seen to be similar to a pneumothorax with the addition of the dense shadow of the effusion at the base of the transparent area. The effusion shadow is very dense and the upper

border is a sharply defined horizontal line. If the patient be shaken from side to side this line will be seen to break up into ripples and splashings. If the patient be examined lying on his side, the horizontal line remains, but is now seen to be parallel with the long axis of the body. In this condition the heart and the mediastinal shadows are displaced to the opposite side. A very small effusion is easily detected by this means which would defy discovery by the usual methods.

Small light shadows may indicate a localized thickening of the pleura, a congestion, an atelectasis or an infiltration, but there is very little to distinguish between either of these conditions on the screen and plate. If the light shadow be found over the entire lung area and is of even density on both sides, an edema of the lung is indicated. A diffuse pleural thickening will give similar shadows. In these conditions the clearness of the image is less distinct than normal and the lung markings are seen to be hazy. Small heavier shadows may signify partial consolidation, small tumors, calcified glands, infarcts or fibrous tissue increase. Very small dense round shadows are due to calcified glands and are sometimes so dense as to give the appearance of shot. Partial consolidations are frequently found in the lower portions of one of the lobes. The shadow of a small tumor is similar to that of an infarct or a focal cirrhosis, but tumors are usually found near the hilum of the lung, while an infarct occurs near the periphery and a cirrhosis or fibrous tissue increase, when of small extent, is most often seen in the apex. A small dense shadow of even grade which occupies one of the costo-phrenic angles indicates a small pleural effusion.

Very large dark shadows of even grade indicate consolidation, gangrene, abscess or filled cavities, tumors or cysts. These pathological conditions have no definite points of differentiation to distinguish one from the other, but are of very definite assistance when considered with the other clinical and physical findings, and will often serve to indicate which one of these conditions is present.

A large dark shadow in the base of the lung indicates a pleural effusion and is seen to have a characteristic appearance. In this pathological condition the line of the diaphragm is lost, the

shadow of the effusion obliterating it. The upper border of the effusion varies in height according to the amount of effusion present and is indistinct, but its general direction is outward and upward toward the lateral chest wall. In a case of complete hydrothorax the entire side is occupied by a dense shadow in which no detail is seen, even the shadows of the ribs being obliterated, and the heart and mediastinal shadows displaced into the opposite side of the thorax.

Small tent-like shadows, when found on the arch of the diaphragm, indicate small pleuro-diaphragmatic adhesions. Large adhesions are sometimes found when unsuspected.

Pleural calcifications may be of small or large extent. When on the anterior or posterior portions of the pleura the shadow obtained will lie in the pulmonary area, but stereoscopic plates, or turning the patient laterally on the screen, will serve to show that the condition is pleural and not pulmonary. The ordinary single plate would leave the examiner at sea for it would be impossible to say that the shadow was not pulmonary.

Sarcoma of the lung has no particularly characteristic appearance, but usually gives a rounded mass outline, when primary, the shadow being of moderate density. A series of such cases were recently reported by Moore to have been diagnosed by means of the shadows noted on x-ray examination.

Primary carcinoma of the lung gives no pathognomonic appearance and is not often enough diagnosed by the x-ray, but should be thought of when an irregularly radiating mass shadow is obtained which involves the hilum and extends outwards from it most frequently in the upper lobes. An interesting case of bilateral echinococcus-cysts of the lung was reported by Albers-Schönberg in which the shadows were dense ball-like masses in or near the hilum of each lung, but no x-ray diagnosis was made. Fortunately, one of these cysts ruptured into a bronchus and was evacuated, and the microscopical diagnosis was made from the coughed up tissues, thus indicating that the shadows represented such cysts.

The x-ray screen examination is necessary to determine the position and the action of each half of the diaphragm, the extent of excursion on each side in ordinary and forced breathing, lameness or lagging of one diaphragm behind the

other, the presence of adhesions to costal wall or to pericardium, regular or irregular outlines, and condition of the costo-phrenic angles as to their clearness. The diaphragm is sharply defined on both sides in emphysema, being a bilateral condition. It is even more sharply defined in pneumothorax, though it is noted to be on one side only when this is a unilateral condition. Its outline is indistinct in edema, in congestion and when a thickened pleura is present. The outline of the diaphragm is not seen in cases in which an effusion is present or in which there is a consolidation of a lower lobe. The action of the diaphragm is of importance, and must be carefully examined in order to discern a slight degree of restriction in movement which at times will give the clue to an early change. There are cases in which all lung findings, physical or clinical, are normal with the exception of a "lame" diaphragm in which the excursion may be only slightly restricted or greatly so, or at times immobilized. A slight restriction in action often indicates beginning pathological lung change on that side, possibly an early tuberculosis or a pneumonia or it may be a pleurisy. There may be lagging on the part of one diaphragm, this one being seen to follow behind its opposite.

An irregular outline of the diaphragm may be due to a pathological change below it and a high position of the right diaphragm may be caused by an enlarged liver which displaces it upwards; or the irregular outline may be seen to be due to the contraction of adhesions. A high left diaphragm may be due to large amounts of gas in the stomach or in the splenic flexure of the colon or to a rudimentary eventration. Pericardial adhesions may also cause an irregular outline of the diaphragm. The amount of diaphragmatic excursion should be considerable, the normal full distance being about three inches. Limitation of this extent will suggest pathological pulmonary change on that side.

The right and left costo-phrenic angles are normally very clear and are easily seen on quiet breathing, though forced inspiration best demonstrates its condition; if cloudy or obliterated an effusion is present or a thickened pleura is indicated, or adhesions exist.

The apices of the lung must be examined to determine the state of aeration and freedom from "clouding." Normally the apices are clear and are

seen to light up on coughing: this phenomenon should be clearly demonstrated in each case, a manoeuvre brought to our attention by Kreuzfuchs. If one apex fails to light up or is seen to be less active than the other, it is an indication of lung change on that side. If a very slight difference is detected it may be a sign of early tuberculous involvement. One or both apices may be cloudy or dull to the presence of cicatricial tissue which has invaded these areas. This usually indicates advanced changes and both apices may fail to light up if the change is bilateral.

That tuberculosis begins in the hilum is now generally accepted and is held to be an established fact, the process extending outwards and later reaches the apex and the periphery. But increased lung shadows do not always indicate tubercular involvement, as the heavy branching shadows extending from the hilum outwards and particularly if most marked in a downward direction, may denote a chronic bronchitis. An increased amount of sputum in the bronchial branches in such cases will serve to increase the density of the shadows. Increase in the shadows of the lungs is present in anthracosis or other dust inhalations, which is due to the heavier atomic weight of the material inhaled. The peribronchial glands when infiltrated, will result in increased shadows and are significant in cases of suspected tubercular involvement, a finding which is regarded by many as corroborative evidence of this lesion. Hazy or wooly outlines of these glandular increases is given as a positive sign of tubercular changes in the active stage. Chronic pulmonary tuberculosis is noted by the very dense shadows due to the enormous overgrowth of fibrous connective tissue which frequently contracts and may displace the surrounding viscera.

An oft repeated question is "Can incipient tuberculosis be demonstrated by an x-ray examination?" It depends partly upon our conception of what incipency is. Many cases that are diagnosed clinically as incipient are found to be advanced when examined by this method. When shadows are found which represent tubercular pulmonary involvement the case is no longer an incipient one, even though the clinical aspect indicates it to be so. At times the only sign of incipient tuberculosis will be a lame diaphragm

on the affected side or the hilum may be noted to be very slightly increased or that the peribronchial shadows have a wooly outline and are more in evidence than normal, or that one apex fails to light up as well as the other. There may be a slight increase of shadows on one side of the lung over the other, which is seen to involve the peripheral areas or the small finer branching shadows may extend upwards into the apices. These are the signs obtainable by means of x-ray examination which, when taken together and carefully considered, enable us often to diagnose incipient tuberculosis before it can be determined by any other method.

The recently revived treatment of pulmonary tuberculosis by means of artificial pneumothorax is easily studied and controlled by aid of the x-ray. The amount of lung collapse may be regulated and the question of how much gas is needed in each is learned by seeing the lung collapse to the required amount. Too little gas may defeat a cure, while too much may cause fatal termination, both of which accidents can be obviated and the procedure made safer, by roentgenoscopic aid, the surgeon or phthisiologist and the roentgenologist working together.

Regarding the referring of patients for this branch of medical consultation, Case in a recent article says:

"Surgeons can do much to discourage the desire of the layman to secure a copy of his 'photograph,' by a little care in the choice of words when discussing the use of the x-ray. A patient referred to the Roentgen department for an 'x-ray picture' or an 'x-ray photograph' of a part is, by suggestion, led to expect that when the work is completed he will have a right to a copy of the 'picture'; whereas a patient referred to the roentgen examining department for an 'x-ray study' or an 'x-ray examination,' will expect to learn some facts about himself without any thought of picture or photograph."

The general practitioner who has referred his patient for x-ray examination is entitled to a full detailed report of the findings together with whatever additional information is seen to bear upon the case, thus receiving the benefit of the roentgenologist's experience in such conditions. If the patient be examined by a skilled roentgenologist, the necessity for "seeing the picture" is lessened. It is not proper for pa-

tients to take the x-ray plates to their Doctor for him to see; the information revealed by these plates should be a direct communication between the roentgenologist and the Doctor, but not through the medium of the patient.

An x-ray examination is, in the strictest sense, a medical consultation and should be regarded as such by physician and patient. Thus the x-ray examination of patients becomes less of a picture-taking procedure and more of a medical service to be performed only by physicians having special training in this form of diagnosis.

There is no serious danger that this newer method of physical examination will give us less reason to become proficient in the older methods of percussion, palpation, auscultation, etc. These will not become a lost art through disuse, but on the contrary, the skill in physical diagnosis of chest lesions, which has been so wonderfully developed in the last century, will make still further advance through the stimulus afforded by a more extensive use of the x-ray in pulmonary examinations.

FOCAL INFECTIONS OF THE ACCESSORY NASAL SINUSES.*

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CHICAGO.

A general consideration of the subject of focal infections would be very interesting and in my opinion quite profitable, however, at this time, it is impossible to devote the time necessary for this purpose, therefore, I will merely speak in the most cursory manner of a few very important preliminary subjects.

The role which focal infections play is, I think, generally considered to be enormous. It is now possible to understand many conditions of altered metabolism which were previously closed books; also, small local infections, which would previously have been considered of no consequence, are now searched for in the most diligent manner, and it is my opinion that the final word will not be spoken in a large majority of chronic cases, as for example, most neurasthenics, and also in those people who have nothing the matter with them except that they have no ambition and do not feel well until a small previously unbound infection is discovered, drained and healed.

Before considering infections of the nasal sinuses it may be well to reflect for a moment on the bacteriology of the normal sinus. Formerly, it was thought that micro-organisms could at all times be found on the mucosa of the normal sinus. This, however, has been proven erroneous. At present it is well known that pathogenic micro-organisms are not present in a normal sinus. Even though a few find their way into a sinus it soon becomes sterile again because of first, the inhibitory power to the growth of pathogenic micro-organism of the secretion of the glands situated in the mucosa lining the sinuses, and second, the sweeping out motion of the cilia of the mucosa which continually wave toward the sinus ostium.¹

I have been much interested in the location of focal infections which various men have been interested in. For instance, one will find the causation of all human ills in the tonsil and another in and around the roots of teeth and yet another in some other place. There is probably no doubt about the patient having trouble in these locations and the interesting thing to me is that on the removal of either of these troubles the patient recovers and the other point clears up; this is explainable I think as follows: The patient was able to combat both of the infections just enough to keep from being overwhelmed, but when one is removed all of the resistance on immunity can be directed to the one focus and the infection in the second focus overwhelmed. This, I think, explains why workers along very divergent lines will get good results, and because one patient clears up when his tonsils are removed, when some other with the same secondary condition clears up when his pyorrhea is cured, is no proof that the results would not have been the same if the treatment had been reversed. In my opinion the logical procedure in a given case is to find the most probable source and remove it, and if the condition is not cleared up then take the next in line—(I take it that we all have failures). Along this line I think it is not difficult to explain why patients who have nasal sinus lesions are less apt to get well with other procedures (i. e., tonsil removal, etc.), than if the cases were reversed. The sinuses are bone cavities lined with mucous membrane and are not perfectly drained in all positions of the body; also the drainage is through comparatively small ostii (with the possible ex-

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ception of the ethmoid cells in which, however, the drainage may be very complicated), and there is very apt to be caries or necrosis or cholesteatoma formation and if these conditions were present they absolutely could not be healed until they had received proper treatment.

Focal infections of the nasal sinuses may cause either quite local troubles or general conditions.

Local Troubles.—Probably the most frequent local condition caused by sinus infection is headache. This may be very general, and I do not at this time have in mind the ache or pain caused by retention of pus in a given sinus, but that which is probably caused by reabsorption of toxins through the sinus walls into the cerebral circulation.² (Grunwald believes that chronic sinus suppuration affects the brain by disturbing the lymph circulation at the base of the cranium, while Robertson considers the reflex vasomotor stasis of blood in the meninges the cause).³ This absorption may also cause sluggish mental action, which may go on to a distinct neurasthenia.

Not infrequently a patient is seen with a muscular or accommodative asthenopia or a contracted visual field which is probably caused by absorption of toxins from an infected sinus and this is proven by the fact that the trouble clears up when the infection receives proper attention. The sinuses usually causing this condition are the posterior ethmoid and sphenoid. Eye affections caused by maxillary or frontal infection are rare.

General Troubles.—Any general condition which may be caused by a focal infection may arise from nasal sinus disease. The most frequent conditions are the various varieties of arthritis. Very recently Hammond has given a very discouraging view of results to be expected in the treatment of chronic infectious arthritis by the removal of infections in the upper respiratory tract; however, in the discussion of his paper much optimism is shown.⁴

Hammond says: "The difficulty lies in determining with certainty that the focus which has been discovered is really the cause of the arthritis." This is the difficult point in the subject of focal infections and one should be quite sure of his ground before making a statement, and then if he is wrong he must not lose confidence in the role which focal infections may play in the causation of general disease.

For one to satisfy himself that any general

trouble is caused by a lesion in the nasal sinuses will call for his full measure of diagnostic skill, and it is not sufficient ground on which to rule out sinus trouble to ask the patient whether they have any nose trouble, or to determine whether there is tenderness over the sinuses. As a rule one man has not the requisite skill necessary to search out points of infection over the entire body and here, if any place in the entire field of medicine, is the place for whole-souled teamwork.

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TREATMENT OF TETANUS.

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STREATOR, ILL.

So much has been written in the past year upon the treatment of tetanus that I am a bit hesitant about reading this paper. However, if I can impress you all with the importance of prophylaxis, and the necessity for early and vigorous treatment after the disease has begun, I feel the object of this paper will be obtained.

Statistics have proven:

First. Tetanus is preventable. Frequently it can be stopped after it has developed, and it can be cured after it has become well established.

The most successful preventive treatment is by tetanus antitoxin. As a preventive measure this antitoxin ranks even higher than diphtheria antitoxin.

The kind of wounds likely to contain the tetanus bacillus are positively known. These include all wounds that may contain dirt, contaminated with manure, such as that from streets, stables or barns and even fields. Wounds by fire-crackers, by gun shots, especially blank cartridges and by crushing machines. Street injuries that are not deep or perforating, but grinding and lacerating, are very likely to cause tetanus infection. Whenever a wound has been contaminated by street dirt or by objects that have been exposed to street or barn dirt, all foreign matter should be removed from the wound, even if to do so it becomes necessary to cut down on them under anesthesia.

Secondly, not only the open wound alone, but

the surrounding tissue as well should be painted with tincture of iodine; then the wound should be dressed with an antiseptic dressing of which a strong alcohol wet dressing is perhaps as good as any.

Thirdly, the patient should have an injection of fifteen hundred units of tetanus antitoxin. Of so great importance is this measure, that failure to administer it in any wound contracted in a manner which is favorable to the later development of tetanus should be considered culpable neglect. If the antitoxin is not at hand an injection within two or three days is permissible, providing an extra likelihood is present that tetanus may develop. A second immunizing injection upon the eighth or ninth day will absolutely prevent its development.

Fortunately within the last few years, the pathway along which the tetanus toxin is absorbed and travels has become quite definitely worked out. It is now generally admitted and proven that the toxin is absorbed through the motor nerve end plates, and travels primarily along the lymph spaces of the motor nerve to the posterior root ganglion, thence to the central nervous system. As proof of this various experimenters have proven that by dividing the fibers of the posterior root ganglion that the tetanic contractures remain localized or confined to the muscles supplied by the motor nerves below the division.

While the means of treating the disease have not been altered, the manner of carrying out the treatment varies in certain respects. Owing to the extreme toxicity of the tetanus toxin, any treatment to be of value must be carried out in a manner that will reach the toxin and neutralize it in whatever location it may be, as far as this is possible. Although numerous methods of treatment have been published with glowing accounts of the results obtained by their use, the tendency is to regard tetanus antitoxin as being far superior to all other means. Theoretically, tetanus antitoxin is the treatment of choice in these cases, although clinical observations do not always substantiate this. From recent observations it would seem that the cause of failure in the past has been due to the lack of understanding the channels along which the toxin passes and to giving the antitoxin in insufficient quantities.

To accomplish the desired effect the antitoxin should be given locally, intravenously and sub-

durally. I purposely omit subcutaneous injections of antitoxin primarily after the disease has begun owing to the fact that it is not totally absorbed for a period of three days. Owing to the extreme toxicity of the infection, the intravenous and subdural injections are the routes by which the toxin is quickest and best neutralized.

From the fact that the tetanus toxin passes up the nerve trunk or its lymph vessels, which supply the tissues involved, it is urged that antitoxin be injected locally directly into the nerve trunk. The direct injection of the nerve trunk can do no harm and probably does block a certain amount of toxin ascending which would not be reached as quickly in any other way. Since the tissues of the spinal cord and brain are chiefly effected, it has been suggested that from three to five thousand units of antitoxin be injected into the spinal canal. Although the spinal injection only comes in contact with the cord, the deeper portions are equally affected by the toxin. Owing to their danger intracerebral injections should not be attempted.

The amount of antitoxin that may be used without causing harmful symptoms seems to be without limit. An intravenous injection, throwing the antitoxin directly into the blood current, causes an immediate neutralization of all toxin present, and within a few hours of all toxin in the lymph and cellular fluids. The dose of the intravenous injection for an adult of average size should be fifteen thousand units, and if the expense is not too great and the serum is available, twenty-five thousand units would be better. The injection should be repeated every six to twelve hours during the first day, and every twelve hours after that time until the symptoms improve. This large amount of antitoxin is not given because there is a large amount of toxin in the body, but because, as only a small percentage of antitoxin passes out of the blood to the cellular fluids, it is necessary to have great antitoxic strength to quickly get the antitoxin in appreciable amounts to the cell.

Of late years two other forms of treatment have been before the profession, namely, the injections of magnesium sulphate and of phenol. Magnesium sulphate is injected in two ways, subcutaneously and into the spinal cord. It is not easy to discriminate between what is more and what is less beneficial in them. The subcutaneous method

is doubtless the safest and easiest. Owing to the frequent reports of death from collapse and respiratory failure, the intraspinal injections are too dangerous to be practical.

Subcutaneous injections are given by injecting 1 c. c. of a 25 per cent. solution for each 25 lbs. of body weight.

Bacelli's method is a subcutaneous injection of large doses of phenol. The results are most striking when carried out in the required doses and according to the author's technic. He uses a 2 to 3 per cent. solution in water, injecting from 60 to 80 grains daily. Following its injection, the nerve excitability is lessened and the temperature falls. Whether or not the good results are due to antitoxic property or in allaying the nervous excitability of the patient until immunity can be produced in the patient's body is not known; however, the improvement of symptoms and the good results obtained have proven that the treatment is of value.

During the course of the disease the patient's strength must be preserved by the use of sedatives in some form to give the required results. Nutrition must be maintained by means of a highly nutritious diet, given by mouth if possible, otherwise by nutrient enemata.

MOUTH HYGIENE AND ITS RELATION TO SYSTEMATIC DISEASES.*

J. W. FULENWIDER, D. D. S.,

COLLINSVILLE, ILL.

Mr. President, Ladies and Gentlemen: Possibly some of you are wondering how a mere dentist would have the temerity to talk to a gathering of physicians such as I see today and what he could have to say that would be of interest to you. I assure you that it surprises me as much as you to find myself occupying this position. I think it is more or less of an accident for which you have Dr. Harrison to blame. Some months ago Dr. Harrison asked me if I could attend this meeting and demonstrate to the Madison County Medical Society something of the nature of the calcareous deposits found upon the teeth of the workers in the lead smelter located in Collinsville. That sounded easy enough and gave me an excuse to get away from the routine of office work for an afternoon.

Later, however, Dr. Harrison decided that I needed more exercise, so he asked me to prepare a paper on some subject which might be of interest to the medical profession. Now as writing papers has been the most neglected of my duties since leaving college and as I am sadly deficient in the experience of addressing physicians, it will be hard to foretell what will happen to me during the next fifteen minutes. I will try to make this operation as painless as possible. You see I have to tell you that it won't hurt a bit, as that is the one thing above all others that I always tell my audiences. My subject of "Mouth Hygiene and Its Relation to Systemic Diseases," offers a broad field for discussion; much broader than any one man is capable of mastering. But the fact that no one college knows all the best of our profession even theoretically and the further fact that no one man could master all of it in a life time, suggests that it is not uncomplimentary for me to assume that I might say some things which would be helpful.

Until recent years there had not been to my knowledge any real scientific effort to ascertain the importance of oral hygiene. But when once launched it grew by leaps and bounds as has probably no other reform movement of recent years.

Statistics show that 75 per cent. of the people make a failure of life, and after observation and research by some of the most brilliant men of our profession many have concluded that if this vast subject were taught by every teacher in the land up to the eighth grade, the children when they become men and women would reverse this deplorable state of affairs. The 25 per cent. of failures would represent that element where environment, poverty, accident, etc., would make for failure.

On what do they base this opinion? First, that we are a nation of sick people and sickness and efficiency represent the two extremes of failure and success. It would be difficult to find a man, woman or child who is not sick at some time during each year of their lives. Now combine this with the fact that about 90 per cent. have diseased and unclean mouths and the further fact that nearly all of the most common diseases are caused by diseased mouths, therefore preventable, and you are forced to the con-

*Read before the Madison County Medical Society, Aug. 6, 1915.

clusion that there is foundation for the foregoing opinion.

We have learned through the efforts of the research committee appointed by the National Dental Association, that a large per cent. of the pathological conditions of the body are due to oral infection. Dr. H. Vallow, of England, positively asserts that decayed teeth act as the invasion point in many cases of tuberculosis. I will briefly trace the method of infection as given by him. First, from the mouth through the submaxillary glands, the superficial and deep cervical glands in the mediastinum, thence to the bronchial glands and from these glands to the lungs.

Again, when the tonsils become infected from mouth infection due to carious teeth, pyorrhea pockets or filthy deposits, they no longer act as a barrier to infection but as culture media for various micro-organisms and toxins, which pass into the circulation. The infections from the mouth drain through the tonsils, then through the cervical lymphatics and empty into the large veins on the right side and the thoracic duct on the left side.

Rheumatism, muscular and articular, nephritis, neuritis, appendicitis or general septicemia may result. Systematic work of the medical clinic of the University of Minnesota in the field of mouth hygiene began over two years ago. All patients had a preliminary examination of the mouth to determine gross evidence of alveolar or dental infection. All patients giving such evidence were referred for study and relief of the mouth conditions, to the dental service. From Oct. 1, 1913, to Jan. 1, 1915, 565 cases were examined and admitted to the medical service. Of these 55 or 9.7 per cent. had serious pyorrhea, alveolar abscesses or both and were included as instances with evident relationship to systemic disease.

The most damaging of all forms of mouth disease I am compelled to believe from my observation and experience with it, is pyorrhea alveolaris or Riggs' disease. I will now pass to a consideration of its history. Some three thousand years ago, Mr. Aeneas of Troy, accompanied by a few true friends, settled upon the ruins of an old Etruscan city in Italy. They went into the real estate business and presently they had a flourishing village which they called

Rome. The town more than equaled their expectations. The Etruscans who preceded the Romans suffered from pyorrhea. We know this because the museum at the Vatican contains pyorrheal teeth firmly fastened in gold retainers that were dug up during the archaeological excavations upon the site of Etruria. There being no newspapers and magazines in those days, the sure cures for pyorrhea were not so well known as now. Consequently it would be reasonable to suppose that the Romans may also have had a touch of Riggs' disease. In fact, from the whippers which we have heard, the Romans had a touch of almost every disease on the calendar. Those old fellows were great on cures. They used charms, snakes, drugs, toad's blood, bones, and everything they could think of to make a specific. One of their sure cures was to lie in the grass at sunrise and bite a spreading adder in the face before he could bite you. If you tried it and failed you never suffered from pyorrhea again.

Now, gentlemen, for hundreds of years the race has suffered from this troublesome disease with little or no apparent relief. It has been the shadow upon the fair name of dentistry; we were helpless, as it were. Not until about seven years ago in my junior year at college was there a chair devoted to the treatment and study of it. Since that time wonderful progress has been made, and just last summer, working independently, two different sets of men, Drs. Bass and Johns of Tulane University, in New Orleans, and Drs. Smith and Barrett, of Philadelphia, succeeded in isolating the micro-organism which without doubt is a contributing cause of the disease. It is the *endameba buccalis*, which also is the protozoon found in dysentery.

The first signs of pyorrhea are a tendency of the gums to bleed easily, foul breath, accumulating of salivary calculus upon the necks of the teeth and finally a flow of pus from the gingival margins. The gums recede and the teeth loosen and there is being constantly passed into the stomach this putrid excrement from the gums. Is it any wonder that practically all of our patients who suffer from Riggs' disease give a history of indigestion and disorders peculiar to the stomach? These pockets and filthy recesses of the gums act as breeding places for numerous forms of disease germs, a veritable hot bed of in-

fection, and unsuspectingly the patient goes on allowing this agent, which is silently acting as the murderer who sneaks poisons in the victim's coffee, to possibly destroy indirectly their very life. And why, do you ask? Ignorance, gentlemen; nothing more, nothing less. For pyorrhea alveolaris is a preventable disease, how preventable it is only too bad that all cannot know.

Dr. Steadman, of London, England, in his lecture before the Section of Stomatology at the International Congress of Medicine in London, in 1914, states that pyorrhea is a predisposing cause of cancer of the mouth, throat and the entire alimentary canal and associated parts.

But you say this may be all very true, yet it seems that if it is the work of the dentist why bother the physician with it? Exactly, now we are coming to the point which should interest you. Education. Educating the public to a realization that general good health in many, many instances depends upon a healthy condition of the mouth, the gateway to the system. We have been pleased to speak of the medical and dental profession as the science of Medicine and Dentistry. What is a science? The Standard Dictionary defines it as exact or universal knowledge. Even the best educated man who has practiced twenty-five years has hardly reduced his practice to a real science. For hundreds of years we have been treating the ravages of the disease rather than the disease itself. We have been treating the effect rather than the cause. With our attention being called directly to the mouth, the gateway to the system, why have we allowed so many years to elapse before we have taken cognizance of the importance of mouth hygiene in its relation to the diseases of the whole body?

With the greater prestige enjoyed by physicians among the laity, your words and advice carry more weight with the average person than those of us as dentists. You can reach a class of people who come to us and are of the opinion when they do come that our interest and efforts to teach them along the lines of mouth hygiene ends when they pay their bill and our advice is for financial gain. Not so with you; they feel that as you receive no benefit in a financial way that you are doing it for their good alone and will heed well your words when you say, get your mouth in a sanitary and healthy condition. This

is how the medical profession could help eradicate much of the misery and disease which is burdening these people of unclean mouths. This class I referred to do not know. Why not tell them that a clean mouth is the first of all requisites for progress in the art of healing. Let us teach the children to fear the effects accruing from a neglected mouth, and in time (I do not expect it for many years) the day will come when the hygiene of the mouth will be looked upon as the most necessary consideration for the body's health and well being.

INTESTINAL AUTOINTOXICATION.*

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Although not a pathological entity, intestinal autointoxication is readily recognized clinically, and recently it has been deemed an important etiological factor in many diseases, heretofore of obscure origin.

That the whole subject of autointoxication of intestinal origin is becoming increasingly important, is due to the stress and strain and irregular habits of modern civilization; to the fact that work is becoming irksome to more and more people; that one arises in the morning not feeling refreshed; that the "tired feeling" and general debility are so predominant, and that the spirit of indifference and laziness appears to be on the increase. These prevalent symptoms are not by any means always due to brain-fag or to overwork, age, or even to worry and habitual fear.

Autointoxication certainly is a more frequent condition than has usually been realized. It is a concomitant of many, if not most all, digestive disturbances, especially those of retention from impaired motility.

The failure of the body to eliminate waste is a foundational cause for many of the disturbances of health, which may be embraced under the term autointoxication of intestinal origin.

Although the complete etiology has not been established, especially in regard to the chemical and bacteriological changes which take place in the intestine under physiological and pathological conditions, yet enough is known to form a working basis for the physician.

*Read at meeting of Iroquois-Ford Medical Society, June 1, 1915.

The fact should be recognized that constipation alone is not always responsible for the symptoms of autointoxication. Some individuals are unaffected by prolonged retention of large quantities of feces; in others postponement by a few hours of the daily evacuation causes considerable discomfort. Some persons seem to become auto-intoxicated unless they have two or even three bowel movements daily.

In the process of intestinal digestion certain toxic bodies, namely, albumoses and leucomaines, are formed. The liver, as a rule, destroys these toxic bodies, but deficient hepatic function leads to their formation in excessive amounts, and their absorption into the circulation produces autointoxication. The digestive tract, skin, and especially the kidneys, are normally active in the elimination of these poisons; therefore, a torpid liver, a sluggish bowel, an inactive skin, or improperly functioning kidneys may each serve as etiological factors.

Overeating, especially the excessive ingestion of proteids, rapid eating, excessive eating of foods ill-adapted to individual digestive functions, adulterated foods, insufficient exercise, rushing to physical and mental labor immediately after meals and sedentary habits all tend to induce intestinal autointoxication.

There is no clinical evidence that the normal disintegration of normal food-stuffs produces intoxication within the intestines, or that the products of such disintegration, even when formed temporarily in excess, are toxic. Normally a certain amount of digestive fermentation and putrefaction is in operation, fermentation predominating. It is only when these processes are carried to excess, that toxic symptoms develop.

Some persons are naturally abnormally sensitive to certain poisons produced within the intestines, following the ingestion of particular articles of food. It is quite possible that these articles allow the bacteria, normally present in the intestines, to multiply with abnormal rapidity, or that they reduce the resistance which the flora of the intestines normally exerts against foreign invaders.

Acute stasis results only when intestinal obstruction is positive and is brought about by a pathological state, causing blocking or constriction, or by a complete intestinal paralysis from

some interference with the neuro-muscular function of the bowel.

Chronic stasis may be caused by adhesions from localized peritonitis, due to gall-bladder or gall duct disease, pancreatic or retro-peritoneal disease, appendicitis, diverticulitis, ulcers, carcinoma, or pelvic disease; by megacolon, veils, or membranes in the ileocecal region, incompetency of the ileocecal valve, ptosis of the abdominal organs, especially of the colon, atony, pressure on the intestine, hernia, cicatrices, enteroliths, foreign bodies, or fecal impaction, spasm, as in dynamic ileus, dilated rectum, and by tight sphincter. Colitis may reasonably be suspected of causing or increasing stasis. Infiltration of the colon wall decreases its elasticity and contractibility and proportionally decreases the propulsive power.

Many diseased conditions are known to be either directly or indirectly caused by intestinal autointoxication. Atrophic cirrhosis of the liver has been too often attributed to alcoholism. Experiments show that products of fermentation and putrefaction, as well as toxins manufactured by intestinal bacteria, including the colon bacillus, can produce atrophic cirrhosis of the liver. Normally, the liver resists these poisons, but when enfeebled, or congenitally weak, it cannot cope with them and cirrhosis results.

Several cases have been described by English writers, in which periodic or cyclic attacks of severe vomiting with great prostration and fever were associated with constipation. While cyclic vomiting very often depends upon acidemia, there are cases where the conclusion must be that the cause is active intoxication in the portal area from absorption of intestinal toxins.

Forcheimer has observed pyorrhea alveolaris as a frequent symptom associated with chronic intestinal autointoxication. The latter condition improved under proper treatment of the former. Metchnikoff's experiments prove that arterial hypertension, later leading to actual arteriosclerosis, is a result of intestinal autointoxication. Cardiac and renal diseases are liable to be produced, especially in elderly people.

There is no doubt that pernicious anemia, and, perhaps, some cases of secondary and symptomatic anemia, are due to hemolytic agents of toxic nature absorbed from the alimentary tract.

Among metabolic disorders, which are caused

by intestinal autointoxication, are such affections as rheumatism, gout, diabetes and obesity. This statement is enforced by the frequent occurrence of constipation in these diseases.

Intestinal autointoxication is held to be responsible for a large number of disorders of the nervous system in which we find constipation existing simultaneously. Among these may be mentioned epilepsy, migraine, neuritis, psychasthenia, neurasthenia, myasthenia, dementia, certain psychoses, and even paralysis.

Exophthalmic goiter has been attributed to intestinal autointoxication.

Neuralgia, insomnia, nightmare, and in children grinding of the teeth and night terrors are produced by intestinal toxemia.

Among ocular affections thus produced, as has been shown by well-known oculists, are blepharitis, keratitis, iritis, and certain neuro-retinal lesions.

The symptoms of intestinal autointoxication may be acute and may even resemble, very closely, ptomaine poisoning, but much oftener they assume the chronic type. The acute form is more common in children.

The group of symptoms most commonly observed is as follows: Headache (often of the type of migraine), vertigo, languor, irritability, insomnia, a high tension pulse, constipation, signs of hepatic congestion, flatulence, indicanuria, furred tongue and associated skin manifestations, as erythema or urticaria. If the attack is more acute, it is usually characterized by sudden vomiting, violent and intractable, with extreme pain, fever, profuse diarrhea, meteorism, local spasms, shock, vasomotor dilatation, and even convulsions and coma, indicating a most violent form of intestinal putrefaction from the decomposition of albuminous food.

An unusual development of gas with eructations, epigastric burning sensations, and acid vomiting usually indicate excessive fermentation.

Constipation may alternate with diarrhea. Arthritis, resembling rheumatism, or distressing myalgic pains may occur.

Physical examination of the colon may reveal retained fecal masses, especially in the descending portion, although there may be a history of daily bowel movements, or even diarrhea. Such accumulations, if not noted by physical examination, may be inferred from the fact that the

patient occasionally passes a fecal mass of hard consistency and very offensive odor.

The x-ray, after administration of barium sulphate or bismuth subcarbonate, will aid in the diagnosis.

Charcoal may be administered as a test of intestinal stasis. The limit of time elapsing before evacuation in the feces should be under sixty hours, normally often in much shorter time than that, but a longer time shows intestinal stasis.

The treatment of intestinal autointoxication, by the very nature of its varying causation, must vary according to the peculiarities of each case. The treatment should be based on the principles of eliminating the poison already present, preventing any further introduction and reinforcing the natural protective agencies. The diet for many cases will need to be individualized and any special disease that may be present must be taken into consideration. Medical treatment is important, but hygiene, regular vigorous exercise and proper living will do still more.

In the acute form, treatment of the cause usually suffices. Complete rest in bed and the administration of calomel, followed by salines, is indicated first of all. The diet should be fluid. Water should be given freely, if retained. Stimulants or sedatives should be administered if indicated.

In the chronic form ascertain and treat the cause if possible. If there is ptosis of the abdominal organs, an inelastic support, extending around the body and from navel to symphysis, should be applied in the morning and worn until bedtime. The action of the liver should be stimulated.

Constipation, which is present as a rule, should receive especial attention. Instruct the patient to go to stool at an appointed hour each day, the best hour being after breakfast. Even when there is no desire to defecate, the attempt should be made, for the voluntary effort may force some feces into the rectum and so result in the regular defecation reflexes and the passage of a stool. Proper attention should be paid to the act itself, for failure to defecate may result from the concentration of the mind elsewhere, as on some interesting book or newspaper. When the desire to defecate comes it should be attended to at once, or the feeling tends to pass away and the

fecal matter remains in the rectum without arousing further desire and, if often repeated, the rectum loses its sensitiveness. These simple rules, if carried out by everyone, would render constipation much less prevalent than it is today and much suffering would be avoided.

The diet in intestinal autointoxication is very important. All foods capable of undergoing fermentation or putrefaction to an abnormal degree should be avoided. The proteids should be reduced to a minimum. Milk is of all foods the most serviceable. Peoples that consume much milk are generally exceptionally robust and long-lived. Milk becomes acid during lactic acid fermentation, while meat, under the same condition, putrefies. Sugar protects organic substances against putrefaction. White cheese has a marked effect in reducing putrefaction in the intestine. Baumann presented evidence that the ethereal sulphates—products of intestinal putrefaction—are materially reduced when white cheese is eaten. Buttermilk should be taken freely. Water, as a rule, should be drunk in larger quantities than the average patient usually takes. Cereals should be eaten and are advantageously combined with milk. Fruits and laxative vegetables are important articles of diet.

In order to preserve sufficient heat and energy, yet not tax the digestive functions, olive oil, butter, cream, fat, bacon, cooked vegetables, preserved or cooked fruit, honey, marmalade, and similar articles, should be recommended. Coffee and tea, as a rule, should be forbidden, or at least restricted to one cup per day. Alcohol should not be allowed. Fried articles, hot biscuits and bread under twenty-four hours old should be avoided. The carbohydrates should be restricted in those cases in which flatulence is marked. Bread, biscuits and crackers, made of graham flour or containing bran, leave a large residue and tend to be laxative.

Hot baths increase perspiration and are soothing to the nervous system, especially when taken at bedtime; in cases of insomnia are helpful in inducing sleep. Since toxic substances of gastroenteric origin are eliminated chiefly through the kidneys, the drinking of cold water and cold bathing seem especially indicated.

Plenty of exercise in the open air, or in well-ventilated rooms, should be strictly insisted upon. Any active exercise may be prescribed, such as

brisk walking, running, rowing, horseback riding, baseball, tennis and golf. Simple daily exercises, indoors, may be taken in the lying or standing position. Those to be taken in the lying position might be lying on the back and raising the legs, one at a time and both together to a right angle with the trunk, raising the trunk to a right angle with the legs, etc. Those taken in the standing position might be bending forward, knees stiff, till the fingers touch the floor, and then backward as far as possible, the hands being raised above the head, bending far over to one side and then to the other, rotating the body on the hips, the arms being extended, alternately raising the knees until the thigh hits the abdomen, etc.

Massage is often a helpful measure. It should always be performed in the direction of the colon, and may be done by hand or with a mechanical vibrator.

Cathartics should be used as indicated. The value of the ordinary vegetable laxatives, with or without strychnine, belladonna, or atropine, is recognized by all. Repeated purgative doses of salines are not advisable in ordinary constipation, unaccompanied by other diseases. A small dose of saline once a day, however, may be good treatment.

Whether certain so-called intestinal antiseptics are really efficacious in the treatment of intestinal autointoxication, has not been fully decided. That they may at times be at least partly beneficial in antagonizing poisons already formed within the bowel, and that they are distinctly useful in inhibiting a profuse and dangerous growth of bacteria, cannot be denied. On the other hand, the problem is to be able to apply antiseptics strong enough to destroy bacteria without at the same time injuring the intestinal mucous membrane, and, likewise, at the same time destroying the innocent germs which are concerned in digestion. Among the most useful of the intestinal antiseptics are naphthalin, thymol, the sulphocarbolates, subnitrate and salicylate of bismuth, salol and hexamethylenamine.

Among medicinal agents, which give bulk to the feces, are agar-agar and flaxseed. Liquid petrolatum is used extensively. If well refined, the American oil is probably as good as the Russian.

If there is putrefactive fermentation, lactic acid bacilli may be given in the form of the Bulgarian bacillus. The systematic and continuous use of the latter is especially indicated in cases accompanied by hypertension with a tendency to arteriosclerosis.

At times a high enema, once or twice weekly, of one-half to one pint of warm olive oil, at bedtime, allowing the same to remain until morning, will have a wonderful effect in starting the bowels on a new line of activity.

The weekly, biweekly, or, at times, even daily use of colonic flushing by the postural method, is to be recommended. Perhaps there is a no more efficient measure in both the relief and cure of chronic intestinal autointoxication associated with atony and dilatation of the colon and the accumulation of enormous quantities of fecal matter than the therapeutic application of the colocolyster. By this means it is possible to introduce the largest quantity of water which the colon can hold without overdistinging it. In the ordinary enema it is difficult to introduce more than a pint or two of water, and this is usually taken in the sitting position, so that rarely more than the rectum and lower portion of the sigmoid are reached. When the patient is placed in the knee-chest or in the Sims' position, with hips elevated, the amount of liquid may be increased to four or even five or six pints without causing any inconvenience to the patient. In the knee-chest position the action of gravity is still more helpful in completely filling the colon.

Should there be impaction of feces in the colon, sigmoid or rectum, the ordinary purgative enema, composed of water, one pint; Epsom salts and glycerine, of each two ounces, and turpentine, one-half ounce is useful.

The introduction of very hot water (110°-120° F.) into the colon increases blood pressure, improves and accelerates the heart action, and produces a marked effect upon the renal secretion.

The graduated enema, as recommended by Kellogg, is a very useful method of overcoming the enema habit by weaning the bowel from the frequent necessity of distension with warm water in order to produce an evacuation. Each day the amount of water is diminished and the temperature lowered. "Beginning with three pints of water at a temperature about that of the

body, the amount of warm water introduced each day is diminished by one-half pint, one-fourth pint of cold water being added, making the total amount of the fluid one-fourth pint less each day. At the end of the twelfth day the enema will consist of four ounces of cold water." Sometimes a preliminary clearing of the rectum by means of a simple enema of warm water is necessary before the high injections are begun.

If measures, such as those spoken of, when thoroughly applied, do not overcome the stasis and toxemia, the question of surgery should be seriously considered. Numerous operations have been devised for the correction of the various causative factors concerned in the arrest and stagnation of the intestinal contents. Among the procedures are those of Coffey and Reed for the restoration of the ptosed colon to its normal position, and those of Lane, whose best-known operative exploits are based on Metchnikoff's view, that we are better off without a colon. When there is extensive disease of the wall of the colon, the exclusion or removal of this organ is a justifiable procedure, after a reasonable trial has been given to medical methods. The surgical procedure to be employed in any given case should be determined, not before operation but after the abdomen has been opened and completely explored. The operation must be made which will most efficiently correct or remove the anatomic or physiologic abnormality which is causing the stasis.

THE NEWER METHODS OF CESAREAN SECTION.*

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Cesarean section has been done on the dead mother since time immemorial. The operation is referred to by the early Egyptians and in the myths and folk-lore of the European races. The Lex Regia of Numa Pompilius, 715 B. C., expressly commands the removal of the child before the burial of the mother. Cesarean section on the living is of more recent date, although in all probability it was performed by the earlier peoples. The ancient Jews applied the term "Jotze Dofan" to a child delivered through the belly of the mother. In 1879, Felkin, an African traveler, witnessed a cesarean

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section performed by the natives in the heart of Uganda. The woman was held in a reclining posture by two men. At her side was a gourd of banana wine, and she was half drunk. The operator stood at her left. First he washed his hands in banana wine, then he washed the belly with the same—active antiseptic measures. With a short curved knife he made one incision through the belly, right into the uterus and quickly delivered the child alive, an assistant holding the uterine incision open by hooking his fingers into it. By uterine massage, the placenta was expressed and hemorrhage controlled. Several bleeding points were cauterized with a hot iron. The cervix was dilated from above with the fingers. The assistants then turned the patient on her side to allow the blood to drain out of the peritoneal cavity, the intestines being retained by a square of plaited twigs, after which the belly was sewed up with pins and figure-of-eight sutures. Pins were made from bamboo stick, the sutures from reed fibres. The wound was covered with a paste made of aromatic herbs. The patient recovered in eleven days, having run a mild febrile course. Without doubt, this operation must have been performed for many centuries for the technique to be so perfectly developed.

The first generally accepted cesarean section on the living was made by J. Trautman, of Wittenberg, in 1610, on a case of hernia uteri gravidi. Engelman says that about 1250 Bishop Paulus of Meirada, Spain, performed one, also that Christ. Bain did one in Italy in 1541. About 1500, J. Nufer, a swinegelder in Switzerland, successfully delivered his own wife after a dozen midwives and several barbers had failed, and in 1581, F. Rousset had published 15 cases, which probably were not all extra-uterine pregnancies, as has been suggested. Rousset's monograph established the operation, and in spite of its own frightful mortality and the resultant opposition of Europe's best accouchers, it very slowly became an acceptable resource in those forlorn cases where the parturient almost to a certainty would have died without it. The Catholic Church had much to do with the habilitation of the operation, since it enabled the rite of baptism to be given to the child. Sigault's symphysiotomy for a few years only was a competitor of cesarean section.

Kayser (Copenhagen, 1844) found a mortality

of 62 per cent for the previous eighty years, but Tarnier said that up to his time there had not been a successful case in Paris during the nineteenth century, and Spaeth said the same thing in Vienna in 1877. Harris collected 80 cases in the United States, with a mortality of 52 per cent. The causes of death were hemorrhage and infection. In cesarean sections sutures were not put in the uterine wound because the ends could not be left long for the subsequent removal, as was the custom in olden days. As a result the women often died of hemorrhage into the peritoneal cavity. For the same reason lochia escaped into the belly and usually set up peritonitis. Further, aseptic technique was unknown, and all laparotomies were fearfully dangerous. In 1769, Lebas put three stitches in the uterine wound and left the ends long, by which they were subsequently removed with success, but a true efficient uterine suture was not made until Säger recommended it in 1882. In 1877 Porro, of Pavia, to avoid the dangers of hemorrhage and of infection from the leaking of the lochia, advised the supravaginal amputation of the uterus after the child was delivered, and for a short time this operation bid fair to replace the old conservative cesarean section. Säger's operation in 1882 showed such good results that Porro's was soon relegated to its proper place—as an operation where there is some special indication for sacrificing the uterus. The essentials of Säger's operation are: Median abdominal incision; median uterine incision, with or without eventration of the uterus; use of rubber ligature around the cervix to stop hemorrhage; resection of a strip of uterine muscle under the peritoneum; interrupted silver-wire seromuscular sutures, avoiding the decidua, 8 or 10; interrupted fine silk seroserous (Lembert) suture, 20 to 25; extreme antisepsis.

Previous to Säger the abdominal incision had been made in all possible locations, the uterus opened in many different places and ways, drainage of the uterus, of the abdominal cavity, above and below, and many other devices had been practiced. The object was to avoid hemorrhage, seepage of lochia, adhesions of the uterus to the abdominal wall, to the omentum, with the danger of rupture of the scar in subsequent pregnancies. With the general improvement of our aseptic technique the results of Säger's operation got better, and it was found possible to dispense with most things he

considered necessary. Many varieties of suture have been recommended—through and through, interrupted or continuous, buried muscular, sero-muscular, decidual, three layers, four layers, silk-worm gut, wire, silk, catgut, etc.

Since the difficulties above enumerated always beset the classic cesarean section, and since the greatest dangers came from the fact that the peritoneum was opened, the accoucheurs sought to avoid this necessity and tried to extract the child from beneath the peritoneum. The first suggestion came from Joerg in 1809, and Ritgen performed the operation in 1821. Physick of Philadelphia, in 1824, recommended this operation to Dewees of Philadelphia, but I could not find that Dewees had performed it. Joerg had suggested that the incision be made in the flank, and that the peritoneum be dissected upwards in the manner preparatory to ligation of the internal iliac artery, the child then being extracted from the parturient canal. In 1870, T. Gaillard Thomas revived the operation which had been named "gastro-elytrotomy" by Baude-locque. Very few of these operations were successful, as we can readily understand. It was because of the lack of asepsis, and infection killed nearly all of the women. When Säger's classical operation became established, the mortality of cesarean section dropped, and in the nineties, series of cases of 100 with 3 or 4 deaths were reported, which for the time, and considering the high mortality of previous years, was very satisfactory. With more widespread usage of the operation, its inherent dangerous features became more appreciated, and on the other hand, its limitations were keenly felt. In order to be successful, the classic cesarean section must not be performed on any but clean unsuspecting cases. The classic cesarean section also left adhesions in the belly, the uterus adherent to the abdominal incision, the omentum to the uterus, intestinal adhesions, even in aseptic cases; occasionally acute dilatation of the stomach occurred. Further, the accoucheur cast about for methods of enlarging the field of supra-pubic delivery and of increasing the number of operations which would render unnecessary the sacrifice of the living child. The desire to avoid craniotomy on the living child is responsible in a very large degree for these attempts to improve the classic cesarean section and extend its indications.

In 1906, Frank, of Bonn, recommended supra-pubic delivery after closing off the peritoneal cavity by uniting the peritoneum of the uterus to the peritoneum of the abdominal wall. The child was then delivered through the almond shaped opening, thus shut off from the general peritoneal cavity. Later, Sellheim attempted to push the peritoneum upward from off the bladder as was recommended by Physick in 1824, which thus freed the space over the cervix and lower uterine segment, through which the child was delivered. Many operators, mostly German, modified this idea, and now there are about 20 different procedures. All these methods of performing the operation depend upon certain changes which occur during pregnancy and labor in the relations of the cervix and lower uterine segment to the bladder and vesical peritoneum.

We know that during pregnancy the peritoneum over the lower uterine segment and bladder becomes very much softened and loosened from its base. It also hypertrophies under the stimulation of pregnancy. With the development of the lower uterine segment and cervix in the latter weeks of pregnancy and particularly in labor, the muscle of the cervix is drawn away upwards and outwards from the bladder attachments. The vesico-uterine culdesac is usually obliterated. The peritoneum is also drawn upward at the sides of the bladder in the neighborhood of the round ligaments. At the same time the mobility of the peritoneum on the subjacent structures becomes much increased. It is therefore possible after incising this portion of the peritoneum to push the bladder off of its cervical attachments with great ease, and expose an area of the cervix and lower uterine segment large enough for the delivery of the child without encroaching on that portion of the peritoneum which is opened in the classic cesarean section. Of the twenty or more operations that have been invented only two seem likely to obtain recognition. All these methods may be divided into two classes. First, the transperitoneal, and second, the extraperitoneal. In the transperitoneal operation the belly is opened above the pubis and the peritoneum over the cervix and near the bladder is incised and loosened from its bed. By means of closely set continuous sutures, or by clamps, the parietal and visceral peritoneal layers are united. The lower uterine segment and cervix are then incised, the child delivered, the placenta follow-

ing; then the uterus is closed and the double layer of the peritoneum also reunited. The peritoneal cavity thus is temporarily removed from the field of operation, and infectious matters such as meconium, liquor amnii, blood, etc., are not permitted to soil the general peritoneal cavity. Some operators cut the line of sutures and reunite the individual layers of peritoneum. Others do not do this, but sew the two layers together. Sellheim sews the uterine wall to the skin and leaves the wound open to drain and calls such a delivery one through a uteroabdominal fistula. Among transperitoneal cesarean sections, that invented by Krönig and modified by Gellhorn of St. Louis, seems to possess most advantages.

The patient is placed in a high Trendelenburg position. This allows the uterus to fall away from the pelvis, stretching the lower uterine segment over the head. A median incision is made from the pubis to within two inches of the navel. The peritoneum is opened as usual, having a care of the bladder, which may be very high. The peritoneal line of junction with the bladder is determined, and lifted up with forceps. A short transverse incision in the peritoneum is made, similarly to that for amputation of the uterus. The peritoneum and bladder are pushed off the anterior wall of the uterus well down toward the external os, uncovering the muscle of the lower uterine segment for a space large enough to make a four and one-half inch incision. The thin lower segment is carefully incised. In my cases the hemorrhage was very free and the cutting had to be done in a pool of blood under the guidance of the fingers. To the obstetrician, however, this manner of operating is the usual one and is easily carried out. The head is delivered by forceps after pulling the face into the opening. The placenta is expressed, the uterus cleaned out, packed if need be, and the incision carefully coapted by two rows of sutures closely set. Then the peritoneum and bladder are drawn up over the line of sutures and united on the face of the uterus. Gellhorn's modification consists in uniting, temporarily, during the time of delivering, the parietal to the visceral peritoneum with a continuous suture. It is needed only in infected cases. When infection is suspected I would recommend leaving a small drain in the lowest portion of the uterine wound leading it out into the vagina, so as to drain the space under the

bladder and peritoneum. Or one could make a small opening into this space from below, between the cervix and the bladder and insert a drain. In infected cases, too, a cigarette drain should be placed in the lower angle of the abdominal wound down to but not through the parietal peritoneum.

Of the extraperitoneal methods, that of Latzko is the best. In Latzko's operation the incision is made either transversely or longitudinally, just above the pubis. The peritoneum is pulled out of the pelvis and the bladder is pushed off of the cervix to the right. Beneath the vesico-uterine fold, which has been pushed up toward the navel, a bare space of cervix and lower uterine segment is provided through which the child is delivered.

The most important feature of this whole subject is the indication for operation. Let us remember the objections to the classic cesarean—the dangers of infection of the peritoneal cavity, the dangers of adhesions, the dangers of rupture of the uterine scar in subsequent pregnancies, and finally, the limitation of the operation to clean cases. The hope that these newer modifications would entirely obviate all the above dangers has proven illusory. In virulently infected cases any form of cesarean section is a grave risk. The only operators that I know who have been bold enough to do the newer operations in positively infected cases are Küstner of Breslau and Baisch, and their articles certainly give one food for thought. Küstner has performed 100 extraperitoneal cesarean sections with but three deaths, and many of these cases were frankly infected or suspicious. The deaths were from sepsis and could have been expected. Most authorities, however, have felt that in frankly infected cases the operation was not safe enough, but they believed it has a field in border-line cases or where the infection, if it is present, is not likely to be serious. Here is the important point. Some cases get well no matter what you do, cesarean section, craniotomy, etc., because the infection is non-virulent. Others die in spite of all. Physical signs—temperature, pulse, fetor of discharge, etc., all fail; also bacteriology, to determine the dangerous cases. That the operation will completely eliminate the necessity for craniotomy on the living child, Küstner is the only authority to contend. In several of Küstner's cases the child was born alive but died shortly afterward, an experience which was to be expected, and which makes one question the

wisdom of exposing the mother to such a serious risk for such a questionable gain.

In the next place, as far as peritoneal adhesions are concerned, they are not entirely eliminated by the extraperitoneal methods, and they certainly are not by the transperitoneal. Paralytic ileus and dilatation of the stomach have been observed after extraperitoneal cesareans and even after pubiotomy.

As far as rupture of the uterus is concerned, there are not enough cases which have had subsequent children upon which to form an opinion. Theoretically, one would suppose that the thin cervix and lower uterine segment would more easily rupture than the thick muscular fundus. If one can apply the experience in vaginal cesarean section to this class of cases, one will have to admit that the danger of rupture is certainly no greater than in the classic cesarean section. A second extraperitoneal section may be impossible because of scar formation.

As far as the widening of the indications of the cesarean section is concerned, it must be admitted that the newer methods do permit us a greater latitude in cases of mechanical dystocia. In the classic cesarean section the best results are obtained if the operation is done at the very beginning of labor, before the rupture of the membranes, and before any examinations have been made or before the cervix has been large enough to allow any communication between the vagina and cavity of the uterus. With every hour that the woman is in labor the mortality of the classic cesarean section increases. With the extraperitoneal method it is possible to give the woman the test of labor and if the head fails to enter the pelvis, to perform the operation after even 24 hours have elapsed. It is thus seen that the new operation comes into competition with pubiotomy.

Pubiotomy has almost disappeared from the clinics of Europe. A few cases are reported from England and occasionally from France or Germany. In Italy its vogue has also been curtailed. In America, Williams of Baltimore is a strong supporter of pubiotomy. I, myself, perform it occasionally in selected cases. The various modifications of the extraperitoneal cesarean section have displaced pubiotomy in the border-line cases. Whether or not this is a permanent substitution, only a large number of cases will tell. My own

experience with extraperitoneal cesarean section comprises only four cases, so that I am in no position to pass judgment. Technically the operation is much more difficult than pubiotomy and decidedly more complicated than the classic cesarean section.

LONGEVITY IN ITS RELATION TO SEX

OR WHY

FEWER MEN THAN WOMEN ATTAIN OLD AGE.*

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The subject of human longevity is an interesting one to all persons who are not absolute fatalists, bound by the dictum that "A man dies when his time comes," regardless of heredity, environment, occupation or conduct. The study of longevity as influenced by sex is a very significant and practical one from an economic, sociologic and prophylactic point of view. There is a normal or potential age limit for every individual setting forth on life's journey, depending upon the inherent vital qualities or resistance of his organic tissues and their biologic cell elements, on the one hand and the natural wear and tear to which they may reasonably be subjected on the other. A condition which gradually leads up to this potential limit we designate as a normal physiological hardening of the arteries called arteriosclerosis, a pathologic change in the inner arterial wall by which its elasticity is impaired or lost. This potential age limit is seldom reached; for in addition to causes over which man has little or no control, he also contributes to his own undoing in many devious ways, e. g., by greatly exceeding the necessary requirements of the body for food, figuratively speaking. "One may dig his grave with his teeth." Dr. John Abernethy, an old English physician, noted for his aphorisms, put it this way: "One-fourth of what we eat keeps us, we keep the other three-fourths at the peril of our lives." Some one has said: "So prone is a man to his own destruction it seems a devil's use were gone." Nearly two thousand years ago the Roman philosopher Seneca wrote, "Man does not die; he kills himself." This indictment is perhaps more nearly true today than ever before under the artificial conditions of our high pres-

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sure civilization. Among the large number of complex causes, therefore, which tend to premature old age and shortening of life, very many are more or less volitional, that is, dependent upon chosen environment, occupation, and conduct. This volitional control places each individual under a moral responsibility so far as it lies within his power to conserve his own inherent vital resistance to its normal limits.

In dealing with the question of human longevity we must consider the *average* possibilities of life endurance. With individuals these are necessarily of wide variation. What then may we regard as the normal limit for the race in the aggregate? The psalmist wrote: "The days of our years are three score years and ten; and if by reason of strength they be fourscore years, yet is their strength, labour and sorrow; for it is soon cut off and we fly away." Physiologists are generally agreed that the age limit should approximate the century mark more nearly than the Biblical "three score and ten." Gaius, the Roman jurist, living in the time of Marcus Aurelius, wrote, "One hundred years is the limit of human life." Flourens, the noted French physiologist, who was the first to demonstrate experimentally that the tissues of the body undergo a constant renewal, wrote, "A Treatise on the Duration of Human Life," in which he also placed the natural limit at one hundred years. Sir Richard Owen, the eminent English zoölogist, believed that 103 years should mark the boundary line, while Sir Benjamin Ward Richardson, the noted English physiologist, extended the normal span of life to 110 years. We can cite numerous, authentic cases of recent records, which "by reason of strength" have surpassed the last figure by many years. Comparative anatomists have estimated that the duration of life among various species of mammals has a fairly uniform ratio of five times the period required to fully develop the skeleton of any particular species. In the human species this period is 20 to 22 years, giving 100 to 110 years as the potential limit.

Rudolph Virchow's epoch making discovery of cellular pathology has thrown a flood of light upon the subject of longevity. We know now that the ultimate cells of which all tissues are composed, possess the power of reproducing their kind. Before the parent cell is worn out it has generated a new one to take its place. If this

process could be repeated indefinitely our bodies would be immortal; but there comes a time for each when the powers of cellular reproduction slow down and finally become exhausted and natural death results from the inevitable, self-generated, toxins, which cause pathologic changes in the cell, just as in time a piece of machinery is worn out by friction. As Dr. Oliver Wendell Holmes said: "We are all sentenced to capital punishment for the crime of living." The life problem then is, how may we get a stay of execution and postpone the fatal day to the utmost limit of the potential endowment? Let us not be misunderstood. We are making no plea for an *old age prolonged* but for an *old age deferred*. A mere vegetative existence of protracted mental and physical decrepitude is not a blessing. The avoidance of prescnilty, however, and the conservation of the utilities of mind and body far beyond the usual retirement period for active life (at the age of 60 to 70 years) is of vast importance to society. History affords many instances of great achievements in advanced age. Picture to your mind the sturdy old dogs of Venice, Enrico Dandolo, at the age of 94, leading his gallant fleet in the 4th Crusade, the first to leap on shore at the siege and fall of Constantinople; or Titian wielding his brush with almost undiminished skill in the production of his masterpieces till his palette fell from his hand, when stricken with the plague, at the age of 99; or Antonio Stradivari in his little workshop at Cremona, putting the finishing touches to the last one of his marvelous violins with deft fingers, that had not forgotten their cunning, at the age of 92; or Gladstone, "The grand old man" of England, swaying the multitude with impassioned oratory, in his last great speech at Liverpool, on the Armenian massacre by the Turks, when he was 85 years old; or the exhibition at the Royal Academy, London, of the paintings of Sir Thomas Sidney Cooper, the great English animal painter and favorite artist of Queen Victoria, done when he was 98 years old; or the banquet given to Dr. DeBossey, a noted physician of Havre, France, in honor of his 100th birthday while he was still in active practice and who died in March, 1897, at the age of 104; and thus we might go on relating the great deeds of hosts of men and women, accomplished while nearing the century of life's activities.

Senility is therefore a relative term unlimited

by any fixed age. It is characterized largely by degenerative changes in the arterial system resulting from toxic elements generated within the individual or introduced from without. Osler says "Longevity is a vascular question which has been well expressed in the axiom that 'a man is only as old as his arteries.' To a majority of men death comes primarily or secondarily through this portal.¹

According to the United States Census for 1910 the ratio of the sexes under one year was 1,000 females to 1,027 males. Taken by five-year groups there were under five years of age 1,000 females to 1,076 males. This ratio in favor of the males steadily increases for each succeeding five-year group, with only two slight exceptions, up to 50 years when it reaches a maximum in the age group 50 to 54 inclusive, showing a ratio of 1,000 females to 1,183 males. From this high water mark in the preponderance of males the tide begins to ebb until at the age of 70 the majority is reversed in the ratio of 1,033 females to 1,000 males and at 100 years there were 1,576 females to 1,000 males. In the state of Massachusetts in 1897, there were 35 centenarians, 30 of whom were women.

It is interesting to know that in 1910 there were living in this country 3,555 persons who had passed the century mark. Of these 1,380 were males and 2,175 females. In this connection we should bear in mind that in 1910 there were 2,692,288 more males than females in our population; so that other things being equal, male centenarians should far outnumber female centenarians. How shall we account for the fact that more females than males reach 70 years and that they make the century run in an accelerated ratio? If the dame of a hundred winters is as coy about giving her real age as her sister of fifty then the disparity is even greater than it appears to be.

The experience of life insurance companies confirm the census reports as to the superior vitality of women. A prominent and conservative company in its annual report for 1911 says, "With the care taken in acceptance of all our risks there is no reason for discrimination against women. The mortality experience of this company to the close of 1909 has been more favorable for women than men. The actual deaths of women have been 57.7 per cent. of the number expected, while the

actual deaths of men were 60.8 per cent by the same mortality table."² This shows a difference of more than 3 per cent. in favor of female longevity. Statistics given in a recent insurance journal show the average duration of life after ten years of age was 44 years for males and 46 for females.

Dr. de Haviland Hall, an English authority on arteriosclerosis and its relation to life insurance, says:

Though the average duration of life has increased during the last fifty years, there has been an actual increase in the mortality rate among males between the years of 45 and 65 and that one-third the total deaths between the ages of 55 and 65 are due to diseases of the heart and blood vessels.

But *why* should more women live to old age than men? In average virility, stature, weight and physical power they are inferior to men. We should naturally expect the life endurance of the male to surpass or at least to equal that of the female. Has nature endowed woman with a higher vital resistance to fit her to be the nourishing mother of the race? If this be true, we must no longer refer to her as the "weaker sex." Our Civil War may be cited by one as a reason why fewer males in recent reports have reached advanced age, but loss of life as the result of war is more than balanced by the excess of male births and the excess of male immigration. Another interposes that the more peaceful domestic life favors longevity in women. On the other hand this advantage may be balanced by the stress, perils and nutritional drain of maternity. Certain diseases also are more fatal in women than men, e. g. cancer, from which one-eighth of all women after 35 years are doomed to premature death, as compared with one-twelfth of all men.

The problem before us is to interpret the reasons why the female, in the long run, overcomes the preponderance of male births, the large excess of male immigration and the maximum majority of males in the early fifties. These are the stubborn facts.

Inasmuch as heredity, environment, endemic, epidemic and constitutional diseases, hygienic and dietetic errors and the autogenetic toxins which may produce arteriosclerosis are incidental to both sexes alike, it is evident we shall have to seek for such extrinsic poisons as are well known to be active agents in the production of this condition, and to which for obvious reasons the male sex is more constantly exposed. Among these well determined causes lead poisoning, syphilis, alcohol and tobacco are foremost. Concerning all but the last there will be little or no controversy and we will give them only incidental notice.

In his most excellent book, "Old Age Deferred," Lorand places tobacco above the others because of its power to elevate arterial tension. The alcoholic habit once acquired is almost universally grafted upon a

tobacco habit and if syphilitic poison also enters into partnership the individual becomes the victim of a most destructive triple alliance.

The male has a large monopoly in these vicious poisons. The tobacco habit is almost exclusively his and is becoming more prevalent from year to year. We gain an idea of the magnitude of narcotic indulgence from the internal revenue reports ending with June, 1914, which show that American consumers of tobacco paid a revenue tax of more than 79 millions of dollars and that too without a single protest. Government reports (February, 1914), show that 1,223,500 acres of the most fertile land in the United States are devoted to the raising of tobacco. This same land with half the labor would have produced 50,000,000 bushels of corn. It is estimated that 80 per cent. of the males, adolescent and adult, are enamored of the narcotic charms of "Milady nicotine." This harmful indulgence becomes excessive with vast numbers who are doomed to a drug slavery that spells premature senility and race degeneracy.

The physiological effects of tobacco are now well determined. Its only active principle is nicotine. In the smoking of cigarettes two other more highly injurious poisons are evolved from the partial destruction of the nicotine and its wrapper, known as pyridin and aldehyde-furfurol. Claud Bernard, in 1857, first pointed out the local effects of nicotine in contracting the blood vessels in a frog's foot. Henri Huchard, the noted French clinician, came to the conclusion through his own experiments that excessive use of tobacco was a cause of angina pectoris, by exciting spasmodic contractions of the small vessels of the coronary arteries of the heart. He points to the high arterial tension often observed in smokers and maintains that smoking is a cause of arteriosclerosis, by reason of the frequent hypertension which it induces. Adler and Hensel produced atheroma of the blood vessels in animals, experimentally, with nicotine.⁴ M. Boveri quoted by Metchnikoff did the same.⁵ Lauder Brunton, the celebrated English physiologist, says: "I do not know that there is anything that causes such a tremendous contraction of the blood vessels and raises blood pressure to such an enormous extent as does nicotine, except perhaps the extract of the suprarenal capsule which has an action almost identical with nicotine."⁶ It is believed by some authors that nicotine has a direct stimulating effect upon the adrenals themselves and that the

hypersecretion which tobacco induces in these glands is the cause of the increased blood pressure. Brown-Sequard, the foremost authority of his day on the adrenals as ductless glands, demonstrated that the blood of animals from which the adrenals had been removed became more toxic. Langlois' experiments later showed that such animals died from autointoxication and concluded that the adrenals were created to neutralize or destroy poisons. The very recent works of Sajous in our country demonstrate the important role played by the adrenals in the destruction of microbic and other poisons introduced into the system. "Everything points to the fact that tobacco is especially injurious to the adrenals" (Lorand). It therefore must impair their protective functions.

The distinctively male habit of nicotine indulgence once established is seldom abandoned. A life-long struggle is waged by over-stimulated organs in their protective efforts to antidote this habitual nicotine poisoning, which, like the continual dropping that "wears away the stone," results finally in impaired functions through which the cardio-vascular system receives the brunt of injury. Dr. T. D. Crothers in a paper read before a convention of life insurance examiners, in March, 1914, said: "Tobacco first raises arterial tension temporarily and then diminishes it, causing a sense of comfort and relief that is pleasing and sought for. In a short time depression of motor activities follow with nervousness and deranged nutrition. Later in life irregular and disturbed heart action is noted and sudden heart failure is more common in tobacco users than others. Postmortems show arteriosclerosis. It greatly complicates other poisons such as syphilis and alcoholism and increases susceptibility to other diseases." He also declared that "any study of longevity that does not consider tobacco as a factor influencing the conditions of life will be faulty." Dr. M. A. Pissavy in the "Gazette Medicale de Paris," reports results of the examination of 400 cases seen at the Necker Hospital (283 males and 117 females). Of the cases showing indisputable hardening of the peripheral arteries 30 per cent. were males and only 5 per cent. females. The causes in the order of frequency he gave as alcohol, lead poisoning, malaria, tobacco and syphilis, tobacco causing 17 per cent. of the cases.

Dr. Thomas Bodley Scott in his brochure "The

Road to a Healthy Old Age" (1914) after enumerating some of the causes of arteriosclerosis, says, "Last, but not least, I am inclined to blame the eternal cigarette, that pernicious form of tobacco smoking in which a man never knows when he has enough."

We have touched upon only one feature of tobacco poisoning, that which most directly bears upon the question of hardening of arteries as a cause of premature senility. There is a vast amount of evidence supplied by college presidents and professors; from directors of physical training in universities and from principals of high schools, as to the effects of tobacco in lowering the efficiency of students physically and mentally which cannot be entered into here. The conclusions of these eminent scientists are convincing. The indictment of tobacco as a cell poison, impairing mental efficiency and physical growth in youth and causing a slowly developing arteriosclerosis and cardiac inefficiency, with resultant presenility in adult life, can be supported by volumes of evidence, which should appeal to every one who esteems his physical, mental, yes and moral resources at their full values.

It is beside the subject to instance here and there isolated cases of persons who have been excessive users of tobacco and still have reached a great age. The same can be said of alcoholic intemperates now and then, and occasionally of very old men with active tertiary lesions of syphilis contracted in youth. Lorand mentions the father of one of his patients who had "reached his 96th year in spite of his syphilis," which he acquired an age ago." Also one Drakenberg who died in Denmark in 1770 at the age of 146 and is buried in the Cathedral at Aarhuys of whom he says he "reached this advanced age, although he was more often drunk than sober."^a These are the exceptional cases, by reason of hereditary vital resistance or unusual tolerance of these poisons. To be fair and for the humor of it, we present about the only sort of defense raised by the users of tobacco to offset the claims made by scientific investigators of its injury to health and life. An old friend, a chain smoker, lighting his fresh cigar from the stub of the other often remarked, "You don't know how much comfort I suffer at this." Narcotic gratification was his vindication and that is the real milk in the cocoanut of the tobacco habit. If only it were as harmless!

Here is the personal testimony of a centenarian

devotee, in praise of tobacco for *sanitary* reasons. Newton, N. J., Dec. 20, 1914—"Charles Ashford Shafer, who will celebrate his one hundred and second birthday here Tuesday, says, chewing tobacco is a means of preventing disease. He has been chewing it since a boy." Evidence of this kind is very convincing to the uninformed or to the unthinking user of tobacco.

The following clipping from the *Daily Graphic* and the poem it inspired in *Punch* will confirm the views of scoffing and skeptical smokers:

DEATH FROM EXCESSIVE SMOKING.

Aunt Peggy Bailey, the oldest maid in the United States, died on Saturday. She was 112 years old last March and had smoked pipes since she was 8.

Tobacco, I have loved thee well,
Thy praises oft my tongue would tell
What time in meads of asphodel
With thee I wandered.
At midnight glowed my kindled clay,
My fancy firing; dawning day
Reddened as o'er thy ashes gray,
Pensive I pondered.

Yet had I known the fatal draught
That in thy curling wreaths I quaffed,
More deadly than the poisoned shaft
Of wild barbarians,
Then had I broken clay and briar,
And dashed the fragments in the fire,
Forswearing thee, destroyer dire
Of centenarians.

For who thy poison can defy?
Thy victims in their thousands die
Thick as the butcher'd heap that lie
Countless at Blenheim.
Nor time itself can help provide;
They that a hundred years defied
Fall in their centenarian pride
Felled by thy venom.

Yet haply, spite of all they say,
I had not broken briar and clay,
Nor quite so lightly thrown away
The joy that fills one.
But lingered on spite poison slow,
Another 60 years or so;
It takes a century, you know,
Before it kills one.

Because tobacco does not kill its devotees in a brief space of time, and because it operates indirectly through slowly developed pathologic changes in organic structures, any alarm over its ability to shorten life is treated as a joke. A young man in his teens addicted to cigarettes, when cautioned about their injurious effects replied, "In my work I meet a great many physicians who smoke cigarettes. If it is so harmful

as all that, I shouldn't think they would do it." In reply he was told that in spite of the fact that no one knows the injuries of the morphin habit better than the doctor, yet more doctors are treated in institutions for that habit than any other class. A doctor's example may be a dangerous one to follow sometimes. It is often argued that only the excessive use of tobacco is injurious and not its use in moderation. But what is *excess* and what is *moderation* in the tobacco habit, or any other narcotic habit? Here comes in the personal equation. Excess for one may be so-called moderation for another. After all, if the use of any poison has become a habit, can we speak of moderation in any proper sense of the term? The fact that the use of any narcotic drug has become an established, insistent habit is proof positive of an excessive use of that drug, to our way of thinking. Inasmuch as this habit, to a large extent, is acquired during the period of adolescence when its injurious effects are most salient and because its indulgence is most constant, insistent and universal: we believe it ranks a near competitor with alcohol and syphilis as a race poison, not only shortening individual life, but also exerting a baneful genetic influence upon progeny. This latter position is sustained by Dr. H. H. Tidewell of London, England, in a recent book on "The Tobacco Habit." There are doubtless other special causes peculiar to the male, not already mentioned, which render him inferior to the female in longevity. We have specifically dwelt upon that one, which to us seems to be one of the proven, potent, contributive causes. Familiarity with its seductive pleasures, its social amenities and its universal prevalence has rendered us blind to its masked and slowly developed injurious effects.

The remedy is self-evident. Its adoption to any great extent seems a forlorn hope. Must we then join the lamentation of the prophet Hosea "Ephraim is joined to idols. Let him alone?" This is not the slogan of modern uplift propagandas. If it is true that nicotine has a special affinity for certain organs that induces deleterious changes in the cells and tissues of the vascular system by which the span of life is materially shortened, a knowledge of this fact should be widely disseminated among the youth before the injurious habit is acquired. Example should lead precept with clergyman, teachers, physicians and above all with fathers.

In conclusion we have shown, first, that the female, though outnumbered at birth and by immigration, reaches old age in far greater numbers than the male; second, that this disparity is due to certain extrinsic poisons capable of inducing cardio-vascular presenility, to which toxins the male is obviously more prone than the female; third, that the nicotine habit answers every specification of a cardio-vascular toxin and is, therefore, one of the very significant reasons why fewer men than women attain old age.

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PRESIDENT'S ADDRESS

POST GRADUATE WORK AT HOME.

A. J. ROBERTS, M. D.,

President La Salle County Medical Society.

OTTAWA, ILL.

"When I can no longer improve my methods I want to step aside and let another take my place." This statement was made in my presence by an architect a few days ago. If this applies to other professions, how much more should it apply to ours.

When we have reached the place where there is no chance for improvement, then I believe we should step aside and let a younger and more progressive man take our place.

President Arnold of the Harvard Medical School has brought this out very vividly in a recent address in which he says: "The subject of graduate medical instruction is attracting much attention at the present time and is becoming a very important problem in medical education in this country." Acting through its most representative body—the American Medical Association—efforts for improvement were naturally directed first to the medical schools themselves. You all know how much the Council on Medical Education has accomplished in the ten years since it was organized, in establishing high standards for medical schools, in forcing many of the poorer schools to close their doors, and in making better schools of those that remain. While much still remains to be accomplished in this direction, the problem of the proper training of medical students may be regarded as practically settled.

The most important problem of today is that of improving the knowledge of those who are already engaged in the practice of medicine. Many of them have received a very inadequate training, and from the point of view of the public welfare it is as important that these physicians should become better trained, as it is that those about to enter the profession should be well trained.

Recognizing the importance of this problem, the Council on Medical Education has undertaken a study of the present status of graduate medical teaching, with a view of making suggestions for its improvement. It recognizes the need of adequate opportunities for graduate medical study, not only because many members of the profession wish for such opportunities but because they are essential for the public good. This aspect of the problem, the relation of graduate medical teaching to the public welfare, has received altogether too little attention. We have looked at the subject exclusively from the point of view of academic teaching. It is commendable to encourage students to carry their studies to the limits of knowledge in any subject, and it is a worthy ambition to have the most complete equipment and facilities for such studies. But after all is not the real underlying spirit of our universities a desire to be of service to the community? Do they not aim to furnish the inspiration that will improve the condition of mankind, and raise the standards of civilization? We have been so fully occupied with the details of medical instruction, and with the difficulties of keeping pace with the growth of medical knowledge, that we have given little thought to this deeper problem of public service. Yet the possibility of public service should be one of the strongest arguments to induce medical schools to take up graduate teaching and it should influence the line of development of this work.

Returning to the problem of the physicians who have had an inadequate training, where shall they get adequate opportunities for further study? To a certain extent it is practicable for them to attend the regular exercises given in the undergraduate schools, especially the didactic lectures and the clinical demonstrations before a class. The presence of graduates at such exercises does not interfere with the regular instruction. This is not true, however, when we come to consider individual instruction in section teaching. As a rule it is inadvisable to admit graduates to sections of

undergraduate students, because the graduate should have special instruction, adapted to his individual needs, and this can be given only at the sacrifice of time which should be given to regular students. Furthermore, few graduates can afford to give the amount of time that would be required to pursue the studies, as arranged in the curriculum of a medical school. Courses should be provided which are especially adapted to their needs.

The poorly trained men need elementary courses, not advanced courses. Should the medical schools provide such courses? Should elementary courses of this character be provided in graduate medical schools?

Dr. Arnold's contention, as you see, relates solely to graduate instruction in medical colleges, but we as graduate physicians can do much to improve our work by taking up post-graduate work at home.

In order to keep pace with the galloping events in our profession we must lay aside our work occasionally, make a pilgrimage to one of the great centers of medical education and research and endeavor to catch up with the procession or admit that we must take position with the laggards and fall in the rear.

Of all the professions it can be said of the practice of medicine perhaps more than any other, "It is not an exact science." Notions we held two years ago we have today discarded, and one who has not studied the new writings nor attended meetings of the medical societies perhaps still will say in the language of the advertisers, "Rheumatism is the result of an accumulation of uric acid in the tissues, or consumption is an inheritable disease cured only by removing to a dry climate." How often have you heard of a patient who was threatened with pneumonia but the timely arrival of the family physician has averted the calamity? No such thing! If the patient has been overwhelmed with a pneumococcus infection no amount of flaxseed poultices or nauseating drugs can avert it.

I insist that now as never before the young man is coming to his own, and the family physician is passing if indeed he has not already passed.

We have all heard about the doctor who knows all about "my constitution," and we all know how erroneous has been this belief. Either this doctor knows little or nothing about the patient or he

belongs to that class of physicians who has kept abreast of the times and knows what is being done in medicine and surgery.

Fortunately indeed we have men who have been long in the harness but are still young and seekers after knowledge. These are the "leaven that have leavened the whole meal." Had we not had these tireless workers the practice of medicine would not keep abreast with the other great sciences and we should have to be relegated to the rear as a science, whereas we have kept pace with the other great professions and have far outstripped some of them.

What applies to our profession certainly applies to us as individuals, and I believe it is essential to each one of us that we get back to our books once more or that we take up a systematic course of study such as is proposed by McCormick and others.

How then can we bring about this post-graduate work and improve our own methods of diagnosis and treatment of disease? How can we make ourselves more efficient and do the class of work that will make us real competitors with other men in our profession? If we are to accomplish anything it must mean hard work and plenty of it. We have our auxiliary societies which might be utilized for purposes of study. Through these branches we might take up special study of our new conception of cause and treatment of disease.

To my mind the greatest lack in our work is that of a correct diagnosis. Given a correct diagnosis any one can apply the treatment.

Assuming that we have all the instruments of precision (which we have not), how many of us can interpret what we see through a cystoscope, a fluoroscope or even a Roentgen plate? This then should be our aim. Perfect ourselves wherever and whenever we can to do this work.

If we cannot do this we should at least know what is being done in order to more intelligently treat our cases—in other words, send the cases to one who can give us an intelligent diagnosis. For example last fall a member of my own family had the misfortune while cranking the car to have a back fire with the resultant Colles' fracture. With the aid of another physician I reduced the fracture. The wrist looked like a perfect adjustment of the broken fragments, but on referring him to the Roentgenologist I found the ulna im-

pacted between its broken end and the radius. Had it been allowed to remain so the lad would have had limited motion, but after learning the true condition I had it adjusted. This is a common occurrence in the life of every general practitioner, and no doubt we would get better results if we would simply avail ourselves of the facilities to which we all have access.

Another line of work which I am sure we have neglected is that of research work in the study and analysis of endemic and epidemic diseases. For example, every little while we have an epidemic of catarrhal jaundice which is of uncertain origin. If we could get together, compare notes and make a study of the condition, we might help relieve these little sufferers.

Again in epidemics of typhoid and scarlet fever we might trace the source of infection and stamp out an epidemic before it is fairly launched.

To sum up I suggest that we take up some line of study by groups or through our auxiliary societies each week and see what we can accomplish for one year. In other words, that we do intensive work and at the end of the year report the results to the county society.

Dress warmly, don't coddle yourself, bid defiance to Jack Frost and the chances are you will get through the winter without having to require the services of either the doctor or the undertaker.

When a man begins to get fat, it generally means too much income and not enough outgo; that is, too much eating and not enough exercise.

Some men are old at 45, others are still young at 70. It is not so much a question of the calendar as it is a matter of right living.

Money wisely spent for public health purposes invariably pays handsome returns on the original investment.

A tooth brush at home, one at the office, and another in a neat case for your vest pocket are none too many.

Bad air is a bully agent for promoting bad colds and other bad air diseases.

The best time for you to take care of your health is before you get sick.

Be temperate in all things to protect your health and enjoy long life.

From the Bulletin, Chicago Department of Health.

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JANUARY, 1916

Editorials

PROFESSIONAL SUCCESS.

Father Time has marked another cycle, and the readers of the JOURNAL are another year nearer the goal, whether it be of success or of failure.

Comparatively few medical men are failures. A man fails only when he does not accomplish that for which he strives. Fortunately, all men do not strive to attain the same ends nor the same levels. It is not necessary that all men be mental giants that they may make success; neither is success always marked by a blazing trail of publicity.

Ian MacLaren pictured two successful medical men—the one famous throughout the empire, the other scarcely known beyond Drumtochty. MacLaren's hero, while living a life of hardships and deprivation, and hating publicity with all a Scot's ability to hate, attained a success envied by his more famous brother, and died with no more wealth than the ardent love and admiration of his fellow-man and the knowledge of his having done a life's work which was of inestimable value to his people.

Riches are never attained by the great majority of medical men, and one entering the profession must bid adieu to the dream of affluence. Hard work must be the lot of him who practices medicine—or failure. If, in looking backward, we compare our work with the measure of the successful commercial man, we will not feel particularly elated, and this should prompt us to adopt, for the coming year and future years, some of the commercial man's methods.

It is necessary for the professional success of a medical man that he have a competence sufficient on which to live fittingly and comfortably, and with which to provide for the future of his family. He must have this much that his mind may be free to work out his medical problems, and not be overburdened and overtired with the petty problems of existence. "The laborer is worthy of his hire," and the physician should adopt enough of the commercial man's method to insure this for his own welfare.

Success or failure in medicine, so far as service to one's patients is concerned, or so far as one's future prospects are in question, depends much upon available medical literature and its constant reading. Never, within the history of medicine has continual reading and study been so demanded. This necessitates several good medical journals and some of the latest text or reference books for every physician.

The meaning of success to most medical men implies the keeping within the limits of our honorable ethical code; that advantage gained by unscrupulous or unprofessional conduct or practices will hardly be counted success, but will be looked upon by our fraternity as failure.

The year 1916 promises great things for the practice as well as the science of medicine. Let us, as physicians, set ourselves a high standard; let us set a high standard for our State Medical Association, and strive with no small effort to gain the level of our aspirations, so that at the close of 1916 we may look backward once more and feel ourselves successful.

A HAPPY AND PROSPEROUS NEW YEAR.

The JOURNAL wishes all its readers the best year that they have ever experienced. May the most you wish for be the least you get! And as the prosperity of the profession is so closely bound up with the exchange of experiences we

would make a special plea for the more frequent attendance of our members at their medical meetings. A review of the notices of meetings published in the JOURNAL in 1915 discloses the fact that only 38 out of the 98 County Medical Societies held any meetings that were reported to us. The Chicago Medical Society led with 36 meetings. The fifteen branch societies held numerous meetings, but Englewood branch was the only one to report any. Four county societies held 7 meetings; three held 6; one held 5; four held 4; five held 3; seventeen held one each. The 38 societies held 141 meetings, an average of less than four; and for the whole 98 societies an average of less than one and a half. Sixty societies reported no meetings at all!

That record would not lead anyone to be very enthusiastic on the subject. The total meetings of the Chicago branch societies would doubtless nearly double the figures given above, and in point of attendance and value, from a medical standpoint, they average among the best in the state. This is, of course, to be expected from the fact that the members live within a few blocks of the meeting places and the time of meeting is generally late in the evening.

County societies in general must hold meetings during the day on account of transportation difficulties, and usually it means a whole day taken from business. It, therefore, demands an unusual degree of esprit de corps among the members located in the smaller towns and villages.

Would it not be possible to supplement the regular meetings of the county societies by more frequent meetings of the members in each town? This has been in successful operation in several places, notably in Elgin, for years. In that way informal evening meetings can be held without loss of time, as in the case of meetings requiring long trips by train.

We advocate local meetings, not to take the place of the more formal county meetings, but to supplement them. The small meeting with interchange of experiences may be made very valuable, especially when the members prepare themselves by reading up on the topic for discussion. In this way the medical, the financial and the legal aspects of practice can be discussed from time to time to the great advantage of all concerned. The great meetings have no monopoly on the blessings. "When two or three are gath-

ered together in Thy Name, I will grant thy request," applies as well to medical science.

THE CASE OF LYDSTON VS. THE AMERICAN MEDICAL ASSOCIATION.

Briefly stated the case is as follows: Dr. Lydston, five years ago, brought suit to mandamus the state's attorney to bring quo warranto proceedings against the American Medical Association, citing that it was illegally organized in that, as a corporation of the State of Illinois and subject to its laws, it held its annual meetings outside of the state and did not elect its trustees by vote of the members but chose them indirectly by votes of persons not entitled to vote as members of the association.

Technically the case was a petition for mandamus made by Dr. Lydston to compel the state's attorney to institute quo warranto proceedings against the Association and its alleged illegally elected trustees. Practically the case was and continually has been defended and fought through all courts, not by the state's attorney of Cook County, but by Frederick Z. Marx, attorney for the American Medical Association.

The defendant demurred and the demurrer was sustained by the Circuit Court. Lydston appealed to the Appellate Court, which reversed the decision of the Circuit Court, holding that it erred in sustaining the demurrer. Thereafter, *by stipulation of the parties to the suit*, the Appellate Court set aside its judgment remanding the case, overruled the demurrer and entered a final judgment awarding a peremptory writ of mandamus against the state's attorney. The defendant appealed to the Supreme Court, in spite of his consent to the attitude of the Appellate Court.

The Supreme Court held that the Appellate Court had no business to change its former judgment, in spite of the agreement of the parties, and ordered the latter court to enter its original judgment which had reversed the Circuit Court. Thereupon the Circuit Court obeyed the Appellate Court, reversing its judgment sustaining the demurrer of the state's attorney (A. M. A.) and entering a judgment which ordered the mandamus.

November 8, 1915, the Appellate Court affirmed the final judgment of the Circuit Court. December 20, the Supreme Court denied the defendant's petition for a writ of certiorari which asked the Supreme Court to hear the case on ap-

peal. There is therefore nothing left for the state's attorney but to serve the writ of quo warranto against the American Medical Association.

The case has already been heard and decided on its merits. The original petition of Dr. Lydston for quo warranto stated the reasons therefor and these reasons were incorporated in the subsequent arguments in the different courts. The attorney for the A. M. A. (ostensibly for the state's attorney), Mr. Marx, cited precedents for his side of the case and these are overruled in the decisions. If the case goes again before these courts the judgments will be reaffirmed because the questions at issue have already been argued before the courts and have been the basis of the decisions already handed down.

From the above it is evident that the Association must sooner or later reorganize along democratic lines. What these lines shall be depends upon the members into whose hands the courts have practically delivered the Association.

TUBERCULOSIS NOTES.

In artificial pneumothorax in general, there is a unanimity of opinion among those of the most experience as to the indications for applying this treatment; extensive unilateral (or chiefly so), progressive or chronic lesions, which fail to respond to the ordinary hygienic-dietetic treatment, or to tuberculin. Second: recurring more or less severe haemoptysis, which fails to yield to ordinary treatment, or very severe hemorrhage not otherwise controlled, provided, of course, one can be sure from which lung the hemorrhage comes. There seems to be some diversity of opinion and practice, however, in regard to the two extremes, the earlier cases and the last-stage ones.

Pneumothorax therapy is by some recommended for early or incipient cases, which appear to have no recuperative power nor show any improvement under the ordinary treatment; also, in early cases which have no opportunity for the usual open-air treatment, or, again, when the progress toward improvement is particularly slow. At the other extreme, this treatment is employed by many, in otherwise hopeless or doomed cases, as a last desperate resort, whenever compression can be consummated, and occasionally an arrest is obtained.

To assume that if the operation does no good it will do no harm, is false, for there is always the possibility of pleural shock, gas embolism, subcutaneous emphysema, infection of the pleural cavity, disturbance of the blood supply from displacement of the heart, and alighting up of the inactive.—*Boston Medical and Surgical Journal*, November 11, 1915.

A homesick patient never does well. This should be taken into consideration before sending patient great distances from home.

It is well worth while to examine the chest of every case of "stomach" trouble. A great many will be found to have gastric distress, secondary to pulmonary tuberculosis.

The trachea, even in early cases, may be pulled out of position.

Dr. Ritter, experimenting with the cutaneous tuberculin vaccination method, reports excellent results.

An important factor about sputum is that the tubercle germ may be absent, even in well developed cases. Small lymphocytes in large numbers often foretell the early appearance of the germ.

Venesection, taking a pint or more rapidly, will almost always stop pulmonary hemorrhage. However, the method is not to be used indiscriminately.

PENSIONS FOR THE BLIND.

One hundred and twenty-five blind men and women of Cook County have qualified for \$150 a year pensions under the new law, and County Clerk Sweitzer, who receives applications, has forwarded the pension list to the county board.

The pension list has been made up from the hundreds of sightless persons who have applied. Restrictions in the law, responsible for the turning away of applicants, are as follows:

Blind men must be more than 21 years of age, and women must be 18 or over.

Three years' residence in the county and ten years in the state must be shown by applicants.

Blind persons with annual incomes of more than \$250 are not eligible to the pension.

Applicants who are owners of real estate are barred.

Applicant must not be a charge of any county, city or state charitable institution.

Applicant must have no visible means of support other than an income of \$250 a year or less.

Two persons of good repute must make affidavit that they have known the applicant for more than three years and that the statements in the application for a pension are true. The county board figures on a large pension list eventually.

Public Health

NEW BIRTH AND DEATH REGISTRATION LAW LIFTS STIGMA FROM ILLINOIS.

Benefits Illinois Profession Quite as Much as Public, Says Medical and Lay Press—Law to Be in Operation by January 1—Important Features of the New Law Outlined

No legislation of recent years has done so much to raise Illinois in the esteem of her sister states and, incidentally, give a better standing to the medical profession and public health authorities of the state, than the birth and death law enacted by the last General Assembly.

This assertion is based upon editorial utterances of the medical and lay press not only in Illinois, but throughout the nation; and likewise upon statements made in the official publications of the health departments of the various states and in official communications received by the State Board of Health.

In other states where efficient birth and death registration laws have been in operation for some years—and that means practically every progressive state of the Union—there is a very general and proper impression that in the absence of registration of births and deaths, the people are deprived of legal records, which, year by year, are becoming more and more a matter of necessity in their business and social relations, and the public welfare is being jeopardized by reason of a lack of information and data which are absolutely essential to public health protection. For this failure to serve the public interest the medical profession gets the lion's share of the blame and the evident conclusion is that a profession so neglectful of public interests must necessarily be of a low grade of proficiency.

These are the commonly expressed sentiments and if the passage of our new birth and death registration law has served to dispel such views, held with respect to Illinois, the state and medical profession will profit much.

Preparations for putting the birth and death act in operation on January 1, 1916, are now nearing completion. Over 2,300 registration districts have been outlined and approximately 4,600 registrars have been advised of their duties under the law. It has been necessary to prepare fifty different reporting and recording blanks, forms and booklets of instructions and, to start the enormous machine in operation, about 6,000,000 pieces of printed matter are now being distributed.

Those who have been interested in the passage of this excellent law—and the more progressive members of the medical profession have desired it for many years—will recall the following important features:

(a) Requires burial permit to be issued by registrar as prerequisite to any burial; charges undertakers with duties of filling the certificate of death, with presenting same to the physician or coroner for signature and certification of the cause of death; of securing the burial permit from the registrar and of delivering the same to the custodian of the cemetery.

(b) Requires that birth and death certificates shall contain at least the data required by the United States Bureau of Census.

(c) Defines stillbirth; prohibits any certificates disclosing the identity of the parents of an illegitimate child without the consent of such parents.

(d) Provides for the issuance of certificates in the case of deaths where there is no medical attendant.

(e) Requires cemeteries to demand burial permits and to return such permits to the registrar,

In the absence of custodians of cemeteries, the duty of reporting burial and of returning the burial permit is imposed upon the undertaker.

(f) Requires the report of every birth within ten days and, on demand of the health officer, the report may be required within twenty-four hours. The given name of the child need not be a part of the early report, but must be supplied subsequently in order to complete the birth record. Provides for the registration of births of children born prior to this Act.

(g) Requires hospitals and other institutions to keep records of all inmates from which birth and death certificates may be made.

(h) Directs counties to pay the local registrars twenty-five cents each for all birth and death certificates up to the number of 5,000 per annum, and ten cents each for those in excess of 5,000 per annum, payment to be made upon certification by the State Board of Health.

(i) Provides for complete copies of all certificates for county clerks and for the United States Bureau of the Census. The original certificates must be forwarded promptly to the State Board of Health in whose offices they will be filed and statistical reports issued.

* * *

It will be observed that, under the new law, no provision is made for payment to physicians by the county for the certificates filed. Such fees, instead of being paid in insignificant dribbles to individual physicians, go to meet the expense of operation of an efficient machinery for registration of vital statistics and it is very certain that no Illinois doctors, who have the interest of the profession and of the public at heart, will feel that they are in any sense losers by the change.

The medical profession of Illinois has stood too long in the unfortunate light given to the state by its inadequate methods of registration; the medical profession has worked too long to obtain registration such as is acceptable to the national government and the more advanced states, to be in any way concerned over a trifling personal concession to obtain the benefits of this excellent law. In other states, where good methods of registration have been adopted, the medical profession has made similar sacrifices without complaint and without comment. This will unquestionably be the attitude of the profession in Illinois.

Among the benefits which will unquestionably come to the medical profession of the state through the adoption of standard methods of vital statistics will be the greater readiness on the part of other states maintaining high standards, to consider the claims of Illinois physicians in the matter of reciprocity in state medical licensure. As long as Illinois lurked in the dark ages in the fundamentals of public health administration, the entire attitude of other states was one of skepticism toward the medical profession, as well as toward the state's public health machinery.

It will also be observed, in the provisions of the

law, that the physician is no longer charged with securing the details of the death certificate nor of making out the certificate, other than that portion relating to the date and cause of death. These matters are now imposed upon the undertaker, who will render the service without compensation.

ACTIVITIES OF THE BUREAU OF SANITARY ENGINEERING OF THE STATE BOARD OF HEALTH.

The newly created Bureau of Sanitary Engineering of the State Board of Health has already demonstrated its usefulness in meeting the sanitary emergencies which arise throughout the state. The Bureau was put to the test during the recent outbreak of typhoid fever in and about Petersburg, in Menard county, when 180 cases of typhoid developed, due, as was ascertained by the Engineering Bureau, to pollution of the wells at the Old Salem Chautauqua during the high water of last summer. This was but one of scores of sanitary problems confronting the Bureau on its creation.

While it was anticipated that the Bureau would contribute much to the health of the state in meeting such emergencies, an opportunity for valuable constructive work suggests itself in requests which are coming to the State Board of Health from various communities. One of these is a request from the mayors and health officers of Champaign and Urbana that the State Board of Health undertake a sanitary survey of those cities with a view of pointing out the real existing sanitary conditions for the purpose of outlining a definite plan of improvement and extension of water supply, sewage disposal and other means of disease prevention. The survey would also include a constructive plan of organization of public health agencies of the two cities.

Another request comes from the city of Jacksonville, urging that the State Board of Health detail its Sanitary Engineering Bureau to survey the water supply, sewage and garbage disposal and other sanitary equipment of that place.

This is the preventive work that counts. It is the locking of the stable before the horse is gone. It is the prevention of calamity rather than the saving of wreckage which so often occupies the full time of sanitary organizations.

SCHOOLS FOR HEALTH OFFICERS.

Soon to Be Established in Illinois—District Conferences Twice Yearly and State Conferences Annually—Duties of District Health Officers Outlined.

With the beginning of the new year the enlarged service of the State Board of Health, made possible by the laws enacted by the last General Assembly, will be fully organized on a permanent basis. This increased service will be brought about by the employment of district health officers, the state epidemiologist and the newly-organized

Bureau of Sanitary Engineering. The general duties and functions of these officers have already been dwelt upon in these pages; but one important function of the district health officers has not as yet been reviewed and is not appreciated throughout the state.

For the purpose of the district health officer service the state has been divided into five districts, each of which will have its own full-time medical officer. Each of these officers will be expected to organize in his district a conference or school for health officers, to meet, at the most centrally or conveniently located points in the district, at least twice each year and to carry out programs of papers and discussions of such a character as will serve to enlighten local health officers in the latest and most approved methods of public health administration.

With these five rather definitely organized conferences or schools serving as a basis, there will be an annual conference of all of the health officers of the entire state.

Experience in other states has demonstrated that conferences of this kind are of the utmost value, if not quite indispensable, to efficient health service in the smaller communities and rural districts.

As may be seen, in the list of local officials of Illinois, published in the December number of the Health News, the official monthly bulletin of the State Board of Health, there are over a thousand municipal health officers scattered throughout the state. These men are charged with grave responsibilities in their various localities—upon them at times may rest the safety of the entire community,—and yet, for the most part, they must rely for their special training and knowledge upon correspondence and printed literature. There is no organization of health officers in Illinois;—no place where these officials, following the same lines of work and encountering the same problems, can come together for the discussion of their methods and the exchange of ideas.

While the general principles of public health and sanitation may be quite definite and settled, sanitary and public health problems may be materially altered by local conditions. The Illinois health officer cannot rely for his guidance upon the published experiences of the health officer of Massachusetts, Georgia or California. Further, the health conditions encountered daily in Alexander County may be met with seldom or never in Jo Daviess County. What is hoped of the district health conferences is that they will be the place where health officers may gather to learn all of the new practical things of preventive medicine and then to discuss how these new things may be effectively applied to the conditions peculiar to that section of the state included in the particular district.

As a result of the interest created in these district conferences it is but natural to assume that the annual meetings of health officers from all parts of the state will be well attended and will

be productive of lasting benefit. At the annual state meetings it is the purpose to bring sanitarians and health authorities of prominence to speak on their special subjects; but always with a view of practical application. It is not at all unlikely that these annual meetings will become the center of public health discussion where the government and extra governmental agencies and organizations will come together to combine their forces in the warfare against the common enemy—disease.

But aside from these conferences, the district health officer service means much in direct benefit to the people of Illinois. It means that there will be, resident in each of the five districts, a medical health officer, licensed to practice medicine in Illinois, who must give his entire time to the duties of his office. Under the direction of the secretary of the State Board of Health he will supervise all health officers in his district and will work constantly to promote the efficiency of health organization, with the ultimate object of creating a county health officer service. He will engage in an active educational campaign, with lectures in schools and churches and before civic and sociologic organizations and will confer with all organizations in the district interested in public health work or in special sanitary problems.

It will be the duty of the district health officer to enforce all health laws and rules of the State Board of Health and to decide all questions of disputed diagnosis in communicable diseases. In time of need he will organize and direct emergency health service for the suppression of epidemics when communicable disease spreads beyond control and when, under the statutes, the State Board of Health deems it necessary to supersede the local officers in authority, and in times of floods or disasters he will organize and direct emergency medical relief.

The district health officer, while performing these numerous functions, will have as his consultants and advisers the epidemiologist of the board, whose service will extend over the entire state, and the services of the newly created Bureau of Sanitary Engineering. Thus, the new plan of service contemplates more or less intensive health work in the various districts backed up by expert advisory service and with it a co-operative relationship between state and local health agencies.

"BABY WEEK" TO BE WIDELY OBSERVED IN ILLINOIS.

SUGGESTION OF STATE BOARD OF HEALTH THAT BABY HEALTH CONFERENCES BE HELD UNDER AUSPICES OF COUNTY SOCIETIES MEETS WITH MARKED FAVOR.

Throughout the entire United States the week ending March 11, 1916, will be observed as "Baby Week."

All agencies, governmental and extra-governmental, whose activities relate to questions of public betterment, and especially those engaged in child welfare work, have been asked to contribute a part to the movement which has for its object the stimulation of more intelligent and more active public interest in the cause of the babies.

The organized medical profession, public health bodies, women's clubs and many civic and sociologic organizations have joined hands in the effort to promote this worthy undertaking to complete success. Indications are that it will be the most successful child welfare campaign ever inaugurated in this country.

To an inquiry addressed to the State Board of Health asking what might be expected of Illinois in this movement, reply was made that perhaps the best contribution that the state medical department and the organized profession can offer is a cooperative plan for the holding of strictly scientific "Better Babies Conferences" in each county of the State, the scientific work of such conferences or contests to be carried on under the direction of the medical societies of the respective counties, the work of promotion to be done by local women's organizations, the State Board of Health cooperating.

This suggestion met with the enthusiastic endorsement of the central body responsible for the promotion of "Baby Week." It has since been submitted to each of the county medical societies for consideration and at this writing twenty-two societies have acted favorably on the proposal; others have advised the Board that it will be taken up for consideration at their January meetings.

The State Board of Health announced that for the purposes of these "Better Baby Conferences," it will be prepared to supply literature on (1) "How to Organize a Better Babies Conference," (2) "Instructions to Examining Physicians," (3) "Instructions for Scoring Child by Scientific Methods," also the necessary score cards, tables of standards and certificates of examination.

A new booklet on the care of babies entitled "Our Babies—How to Keep Them Well and Happy," prepared by the Illinois State Board of Health will be ready for distribution during "Baby Week."

The following appeared in the editorial columns of the *Springfield News-Record*, December 14, 1915:

FOR BETTER BABIES.

The "Better Babies" contest at the recent state fair has given an impetus to baby welfare work that will accomplish great good. It will hasten the time when we can no longer be reproached with the charge that Illinois pays more attention to the breeding of cattle than to the proper rearing of children.

Dr. C. St. Clair Drake, whose efforts made the fair baby contest a success, is now planning to encourage local contests of a similar character in all parts of the state. It is proposed to hold these contests during the week of March 4-11, which is to be observed throughout the state as "Baby Week."

Literature will be provided by the board explaining how to organize scientific baby contests, instructing physicians on methods to be pursued in the examination of babies and giving scoring methods.

The board of health is the proper agency to take up this work. It is removed from any suspicion of personal interest or favoritism.

These contests are wholly different from the old fashioned baby shows, which were a nuisance. They are simply examinations of babies to learn how nearly they conform to certain recognized standards.

Every mother wants her baby to make a good showing, of course, but she ought to be glad to be told in what respect the baby comes below standard in order that she may attempt to cure the defect while there is time.

The state fair contest proved that mothers take this view of it.

Dr. Drake has been following up some of the "exhibits" at the state fair contest, and he finds that in most cases the mother consulted the family physician at once regarding defects discovered in the baby.

The mother's ambitions are all wrapped up in the life of her child. She needs only a hint as to how she can improve the future prospects of the little one.

Armour & Company announce their ability to supply in limited quantities Peptonum Siccum, a high grade product entirely free from reducing sugars and other diluents and of low ash content.

Peptonum Siccum is made especially for bacteriological purposes. It is a pure article, however, and will answer wherever a high grade non-hygroscopic peptone is required.

Peptonum Siccum will be sold in 25, 100, 250 and 500 gramme bottles.

W. B. Saunders Company, publishers of Philadelphia and London, have just issued their 1916 eighty-four page illustrated catalogue. As great care has evidently been taken in its production as in the manufacture of their books. It is a descriptive catalogue in the truest sense, telling you just what you will find in their books and showing you by specimen cuts, the type of illustrations used. It is really an index to modern medical literature, describing some 300 titles, including 45 new books and new editions not in former issues.

A postal sent to W. B. Saunders Company, Philadelphia, will bring you a copy—and you should have one.

It may take more than one swallow to make a summer, but only half a swallow of dirty milk can make a summer complaint.

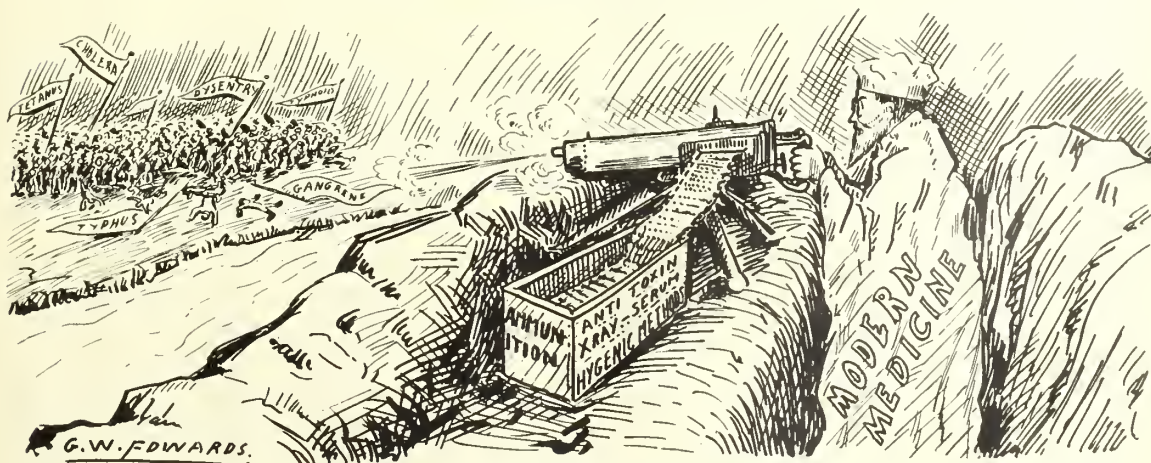
Robbing yourself of sleep puts a mortgage on your future health and happiness; Nature will foreclose.

Open windows close the doors to consumption.

Your lungs can't be washed, but they can be aired.

—From Bulletin Chicago Department of Health.

AN EFFICIENT ALLY



Mowing Them Down

Auto Sparks and Kicks

ALCOHOL REMOVES CARBON DEPOSIT.

Alcohol is a good carbon remover and for the purpose can be used in its denatured state, which is more economical and just as good. The quantity to use for a cylinder at one time would be equivalent to five or six tablespoonfuls. About the best way of applying it is in a sort of squirt gun composed of a rubber bulb in which there is a long, thin nozzle which can be directed against the walls of the combustion chamber and down on the piston head through a spark plug opening. This can be readily made by yourself and should have such a bend in it that it will be easy to insert into the opening for the spark plug and at the same time will be so shaped that the stream of liquid can be directed against any of the likely spots for carbon.

Carbon deposits are apt to accumulate in pockets and recesses of the cylinders and also on the piston heads. Sometimes on motors which have been allowed to go for a long time without having the carbon removed, it is deposited in a conical shaped mass on the head of the piston and very often the tip of the cone becomes incandescent and serves to prevent pistons setting properly.

OIL IN GEARCASES.

Grease or very heavy oil in the gearcases at this time of the year means noisy gears and excessive wear, according to W. J. Mead of the Chevrolet Chicago branch. During the cold weather gear cases packed with grease will cause the gears to run practically without lubrication, because the grease sticks to the walls of the housing and little, if any, gets to the gear teeth. Mr. Mead had occasion a few days ago to examine the differential housing and gearset of a car and found that the gears were running dry and had been for many weeks because the thick oil had stuck to the case. However, it was extremely difficult on the car in question to remove the differential case cover, and in order to keep the gears lubricated a little kerosene was poured into the housing, and in addition a pint of cylinder oil. The latter lubricant seems to be good for cold-weather use, as when it does thicken it becomes gelatinous and not hard. The use of an oil of light body also will show a power gain, be-

cause there is not so much load on the gears. The examination of the gearset is not a difficult matter, and at this time of the year every owner should flush the case with kerosene and fill to level with oil.

AUTO GAS DANGER.

Here's Coroner Hoffman's latest safety hint for automobile owners, evolved from an experience of his own in which his son and he were nearly overcome by fumes from the engine in a closed garage:

Get a dozen feet of cheap two-inch iron gaspipe. Cut a hole through the nearest wall of the garage and fix a wooden flap outside to cover the opening loosely.

When running the engine in the garage clap the gaspipe over the end of the muffler and let the car's burned gas go outside.

Then perhaps you will not be one of the persons killed this year by carbon monoxide, an odorless gas. Six persons were killed by it last year in Chicago.

TWO GOOD BODY POLISHES.

A much recommended body polish is made by mixing the following ingredients:

Turpentine	1 gallon
Paraffine Oil.....	1 pint
Oil of Citronella	3½ ounces
Oil of Cedar.....	1½ ounces

Another scheme is to use a mixture of boiled linseed oil and turpentine, applying it sparingly and rubbing absolutely dry.

SPRING SHACKLES.

The shackles or hangers of automobile springs should be lubricated properly. Rust often clogs up the small vents and excludes the oil. Use common kerosene occasionally in place of the oil, and these will be kept open.

CARBON BURNING PRECAUTIONS.

To prevent a fire when burning out carbon it is wise to remove all traces of gasoline from the carburetor, intake manifold and cylinders by shutting off the gasoline and then operating the motor until all fuel remaining in the carburetor is consumed.

Society Proceedings

ADAMS COUNTY

Annual Meeting

The annual meeting of the Adams County Medical Society was held Monday evening, December 13, 1915. Meeting called to order by President Whitlock. First order of business, reading of letter of state president, regarding plan for re-organization of Medical Department of the army. Resolutions read, and on motion endorsed. Next, secretary read communication from State Secretary Gilmore in reference to the necessity of concerted action by the State Society in medical matters, which came up before the legislature. Motion made and seconded that society instruct its legislative committee to forward a certain sum to Dr. Gilmore to be used for purpose mentioned in communication. Carried.

Then followed election of officers for 1916: President, Dr. Dan G. Stine, Quincy; first vice-president, Dr. J. L. Aleshire, Plainville; second vice-president, Dr. W. D. Stevenson, Quincy; secretary, Dr. Elizabeth B. Ball, Quincy; treasurer, Dr. C. E. Ericson, Quincy; censors, Drs. W. F. Pearce, Quincy; D. M. Knapp, Mendon; Kirk Shawgo, Quincy; defense committee, Dr. John A. Koch, Quincy; trustees, Drs. J. H. Pittman, Camp Point; C. A. Wells, Quincy; R. J. C. Christie, Quincy.

Drs. Christie and Beirne were appointed to escort the new president to his chair.

It was moved, seconded and carried that a committee be appointed to draw up resolutions on the death of Dr. W. A. Garner of Camp Point, and that a copy of the same be sent to the widow.

Before the meeting closed Dr. Christie suggested that a banquet be given to the retiring officers, and that this be an annual affair. Same was discussed.

On motion of Dr. Beirne, the chair was instructed to appoint a committee of three to call on the members to see whether or not the plan would be feasible, and if so, to have power to make all arrangements and dispense with scientific program at the January meeting. Seconded, carried.

Meeting adjourned at 10:30 p. m. and was followed by an appetizing luncheon served in the private dining room of the Hotel Quincy.

ELIZABETH B. BALL,
Secretary.

ALEXANDER COUNTY

The annual election of officers was held at the Association of Commerce rooms, December 16, 1915, and the following officers were elected for the year 1916: President, Dr. W. F. Grinstead; vice-president, Dr. J. W. Dunn; secretary and treasurer, Dr. H. A. Davis; member of board of censors, Dr. C. L. Weber,

After the election a banquet was served at the Colonial Hotel, followed by a social program.

FLINT BONDURANT,
Secretary.

CLARK COUNTY

Society met at the Court House, Marshall, Ill., December 9, 1915, at 1:30 p. m. Eleven members present.

A communication from the State Board of Health was read in regard to the U. S. Scientific Baby Contest for our county, March 4 to 11, 1916. The matter was discussed and it was decided to arrange for the contest. The following were appointed as a committee to plan same: S. C. Bradley, C. D. Ryerson, Joseph Hall, Geo. T. Rowland and L. H. Johnson.

Hall reported a case of amenorrhea with night sweats and fever for few days at first. The cause of the amenorrhea was not yet learned. It was suggested that tuberculosis or a cold simply or pelvic infection might be the cause.

Ryerson reported a case of fracture of skull with depression of area one inch across, which was raised and recovery followed.

J. W. Marlow read a paper on "Business Affairs of the Profession," Chap. II, Sec. 3, of by-laws, accusing doctors of being poor business men. We should show patrons that we earn our money and want it, not beg for our dues. Spoke of the dead-beat who will not pay; advised to learn him as cheaply as possible and quit him. Discussed the honest, honorable poor who, although tubercular, epileptic, syphilitic or in other ways physically, mentally or morally defective, has been permitted to marry; but he had little advice in regard to dealing with him, of course. Suggested mercy now and a law to prohibit such marriages for the benefit of future generations.

The discussion was participated in by all present and several men talked two or three times. Many practical ways of doing things were brought out: For each doctor to let every other member know who would not or had not paid him after proper effort was made to collect his account, then all doctors might know when a man owed one or more physicians and require him to pay as he went or expect to be left like the others were. That the training and equipment of the modern physician—instruments for diagnosis and treatment, auto, etc.—are much more expensive now than in the recent past and therefore reasonable fees and collection of same are absolutely necessary if the sick are to get the best they are entitled to. All bills should be paid when service is rendered or effort made to collect in thirty or sixty days just as the grocer and other business men do. When our oldest members began to practice their work was considered charity pure and simple, to be paid for as the preacher's services were, if patrons wanted to pay, and if they did not want to pay it was a matter of honor for the doctor to do him all the good he could and expect reward in the world to come. Now the active physician must spend all his

time and much money to keep up with the great advances and if he does not charge and collect for services he falls behind, and the sick he treats fail to receive their dues. That the practice of medicine is not as profitable now as it was fifteen or twenty years ago for the reason that doctors have been and are teaching people how to prevent sickness, and they are preventing it, making doctors too numerous in all localities for the amount of business. The old song that some doctors sing that they are too busy to attend the medical society or anything else is known to be a ridiculous joke by all physicians and laity as they all know that every doctor who gets around and does things has all the time he needs to do anything he wants to do. Medicines are much higher in price on account of the war, and doctors must charge more for giving out most kinds of medicine. Doctors are hustling around day and night and merely getting a living or a very little more from their practice, and many can scarcely get enough money in to pay their just and necessary expenses, notwithstanding the opinion so general among the patients that the doctor makes more and easier money than any one in the community. It is true a few physicians make little investments that prove profitable and others lose like other speculators do.

C. D. Ryerson read a paper on "Materia Medica and Therapeutics," stating several facts about elixirs and "specialties," their chemical changes on standing a few weeks, and insisting that they should not be used, as is the easy habit of many physicians, but instead recommending the use of standard preparations—powders, fluid extracts, tinctures, etc.—that the doctor or a consultant may know what effect to expect from the medicine given or to be given. Then discussed quinine, in particular, giving its physiologic actions on different organs in the body and its therapeutic effects in many diseases.

The hour being late a limited though intensely interesting discussion followed concerning the United States Pharmacopeia and National Formulary which are now legal standards of drugs to be used as guides for all who have anything to do with medicines.

COOK COUNTY

Chicago Medical Society

Regular Meeting, December 1, 1915.

1. "Swimming Tank Conjunctivitis," Harry S. Gradle. Discussion, Geo. F. Suker.
2. "The Roentgen Examination of the Appendix," M. J. Hubeny. Discussion, Joseph W. Rowntree.
3. "Co-operative Method of Diagnosis," Carl Beck. Discussion, Ralph Webster, Truman W. Brophy, Adolph Gehrmann, Maximilian Herzog.

Regular Meeting, December 8, 1915.

1. Radium Therapy. Remarks on the use of radium in dermatology and in deep-seated malignant disease. Illustrated with lantern slides, Frank E. Simpson. Discussion, K. A. Zurawski.

2. "The Value of Blood Transfusion in Children," Louis Fischer, New York City.

3. "Views Concerning Hemotherapy Based Upon the Experience of One Thousand Blood Transfusions," Henry W. Abelmann. Discussion, Victor Lespinasse.

Regular Meeting, December 15, 1915.

1. "The Newer Methods of Diagnosis in Urinary Surgery," Daniel N. Eisendrath. Discussion, Gustav Kolischer, J. Eisentaedt.
2. "The Diagnosis and Treatment of Gastric Ulcer in the Light of Modern Clinical Investigation," Frank Smithies. Discussion, Walter Hamburger.
3. "Treatment of Sacro-Iliac Dislocation" (lantern slides), Paul B. Magnuson. Discussion, Wm. E. Schroeder.

Chicago Ophthalmological Society

A regular meeting was held October 18, 1915.

The President, Richard J. Tivnen, in the Chair.

RETINITIS PROLIFERANS INVOLVING BOTH EYES.

Dr. E. K. Findlay reported this case. He said: "The patient, male, aged 26, came under my observation last May with the following history: In December, 1914, he consulted an optician on account of blurring of the sight of the right eye and received a prescription for glasses. A short time before I saw him he began to have blurring of vision of left eye and found difficulty in reading. Examination showed a slight divergence of the right eye. Vr. 2/60 Vl. 6/15. In the right eye the ophthalmoscope showed areas of hemorrhage and the formation of new tissue of a bluish white color, with new formation of vessels. In the left eye the media were clear but large retinal hemorrhages, more pronounced in the region of the disk, could be seen. A diagnosis was made of retinitis proliferans or retinitis hemorrhagic hyperplastica, of right eye and hemorrhagic retinitis in the left. A careful physical examination was made with negative results. There were no renal changes, blood pressure normal, Wassermann negative, and no reaction to the tuberculin test. The patient appeared in perfect physical condition. Treatment has failed in checking the course of the disease and we find at present the vision is reduced to RE. 1/20—LE. 3/60—the formation of connective tissue in the left eye also; with certain areas of new blood vessels.

This condition was first mentioned by MacKenzie in 1864 and the name of retinitis proliferans was given it by Manz in 1867. Numerous cases have been examined microscopically—showing the masses in the vitreous are connective tissue with newly-formed blood vessels, and in most cases there is hypertrophy of Mueller's fibers.

Nearly all cases resulted from hemorrhages in the retina though some authors deny the necessity of hemorrhages. In this case hemorrhages undoubtedly preceded the disease. Hemorrhagic retinitis is comparatively common, but this condition is seldom seen,

so there must be another factor in producing this new tissue. In nearly all the clinical cases there was some local or general circulatory disturbance. This case presents the typical picture of retinitis proliferans with the etiology obscure. There have been no inflammatory changes as iritis or cyclitis. Both eyes are involved and the disease has been progressive. Undoubtedly some toxic agent has caused a local disturbance of the retinal vessels and produced a so-called plastic retinitis.

GOLF BALL ACCIDENT.

Dr. A. N. Murray: A year ago the patient suffered an injury to the left eye, occasioned by a golf ball striking the eye-glasses which he was wearing. The upper lid was severely cut in a number of places; there was a ragged opening through the cornea near the nasal limbus, with prolapsed iris, and an opening into the sclera three or four millimeters long, about three mm. from the nasal limbus. He abscised the protruding portion of the iris. A week later a piece of glass, two mm. long and about one mm. thick, was found embedded in the cornea, just below the center and flush with the surface, having been present this length of time without having produced any symptoms whatsoever. In the meantime the lens had become totally cataractous, flocculent lens matter almost filling the anterior chamber. In attempting to remove the glass it prolapsed into the anterior chamber, and was extracted by lifting it up on the point of a keratome and seizing it with an iris forceps inserted through its wound in the cornea. Its position was determined by oblique illumination and contact with the keratome. The cataract absorbed in five or six months, when it was possible to see clear inside of the capsule owing to its attachment to the inner surface of the cornea at the site of perforation. The attachment of the anterior capsule to the cornea was severed with a Knapp knife-needle, and the posterior capsule needled so that a good opening was secured. Vision of 20/24 is obtained with a plus 10 sphere. The patient is now wearing this sphere before the other eye; with this very unusual combination he apparently obtains binocular vision. This is not constant, however, owing to a convergent strabismus of the injured eye, which developed soon after the injury and is still present part of the time. At first marked diplopia was present; it is now noticed only when the left eye converges. A very fine splinter of glass, visible only with the loupe and oblique illumination, is still embedded in the corneal tissue at the nasal limbus, with exudate behind it, but the condition apparently causes no irritation. It does not seem wise to remove it at present. The corneal scar is very irregular. There is no astigmatism present, although there was quite extensive scarring about the cornea.

In answer to a question the essayist stated that there is no involvement of the ciliary body.

DISCUSSION.

Dr. W. H. Peck, in discussing the paper of Dr. Murray, said he thought it was advisable to have an X-ray picture taken when splinters of glass had penetrated the eyeball, as thereby unsuspected pieces might be found, the pieces of

glass in some cases being opaque to the Roentgen ray, according to their composition and size and distance from the piece of glass and the X-ray plate.

Dr. Suker asked whether, with the great difference in refraction and having binocular vision, an attempt had been made to determine whether there was superimposition of the images.

Dr. Murray replied that no such an attempt had been made.

Dr. Suker asked if it might not be possible that the patient has a suppression of one or the other images, which might thereby stimulate binocular vision.

Dr. Murray replied that he had simply assumed that the patient had binocular vision.

Dr. H. S. Gradle says that it does not seem possible that this patient could have true binocular vision, with a dioptric difference at least of 12 diopters in the two eyes. In such a case binocular vision would not be likely to be present, owing to this dioptric difference and to the subsequent difference in the size of the retinal images, but stereoscopic vision might be present and the optical axes might be parallel.

Dr. Murray, in answering questions regarding binocular vision, said he had not made all the tests possible to determine this matter; that the patient did not have any difference in the size of the retinal images; that these various tests with reference to binocular vision will, however, be made by him. With the exception of this one sliver of glass, there does not seem to be any glass in the eye now. There has been no photophobia nor irritation during the entire year. No effort has been as yet made to determine whether the patient has accurate depth perception.

Dr. Willis O. Nance said that five years ago he had reported to this society a case of injury to the eye by a broken spectacle lens. The literature at that time showed only two or three such cases. They have been, however, reported somewhat more frequently since then. Injuries to children from broken glass lenses seems to be exceedingly rare, considering the number of spectacles worn.

President Tivnen said that Potter and others say that whether glass in the eye can be seen by the use of the X-ray depends upon the composition of the glass. Sometimes it becomes a medico-legal question of importance, whether an X-ray examination should have been made.

Dr. Michael Goldenburg reported the case of a piece of steel or iron having entered the eye some ten years previously. He first saw the case six years ago, when he noted the piece of metal lying flat upon the anterior surface of the iris. Two months ago there was no sign of it.

Dr. George F. Suker deprecated any attempt to remove surrounding tissue by its stationary position and the contraction and dilatation of the iris around it. He saw the case again two months ago and there was absolutely no sign of the metal ever having been present.

This small remaining splinter of glass, because this glass is undoubtedly lead free and non-irritating and will not corrode. Also because the glass has become so well encapsulated and is immobile and the place of its location also precludes mobility and traction upon it, and finally there is no evidence of irritation. The exudate is probably thoroughly organized by now. Unless symptoms of irritation should appear, interference should not be undertaken.

Dr. M. H. Worthington had had a case of injury to the anterior surface of the cornea in a patient who was injured while playing tennis, but the lens of his glasses being struck and broken by a tennis ball. He also referred to the case of a young man who had received cuts on his cornea from broken glass caused by a missile being thrown through the window of a street car on which he was riding.

AN OBSCURE CLINICAL CASE.

Dr. M. H. Worthington reported a case that was of interest to him on account of the numerous outbreaks of inflammation in a pair of diseased eyes, that had been under his observation for several years.

The patient, a young woman, was 15 years old in

1909, when he first saw her. She was anemic in appearance and of a strumous diathesis. Scars on the side of her neck showed the remains of suppurating cervical glands. Her mother was well and healthy, but her father was not strong, and at present is confined to his bed with pulmonary tuberculosis. At that time she had a double keratitis, which was diagnosed as interstitial, but which he now believes to have been tubercular. After several months treatment this quieted down, leaving nebulae and vision of 20/80 in each eye, but no remnants of vessels to be seen in the corneal tissue under the loupe.

The patient was not seen by him again until 1913, although she stated that during that interval she had suffered recurrent attacks of keratitis in both eyes.

At this time she has several fresh spots in the corneal tissue and eyes are highly inflamed.

In September, 1913, she had a fascicular keratitis in her right eye which was very slow in healing, and had to be cauterized before healing took place. In the following year she had phlyctenular keratitis in the left eye.

The patient was seen again in August, 1915, when she had an inflammation in the right eye, and a swelling or nodule at the temporal side of the corneoscleral junction in the sclera, and a typical episcleritis. This condition has improved slowly.

The speaker inquired whether any of the members present had had any experience with guaiacol as a subconjunctival injection in these cases, in aqueous solution 1/100, stating that he was disposed to make use of it in this present case.

(To be continued)

GREENE COUNTY

The annual meeting of the Greene County Medical Society was held in the city hall at Roodhouse, Friday, December 10, 1915.

Meeting was called to order by President L. O. Frech at 11:30 a. m.

Twelve members present. Visitors: Drs. W. P. Elmer of St. Louis, Mo., W. D. Chapman of Sylvis, and John Botkin of Roodhouse, Ill.

The minutes of the previous meeting were read and approved.

Election of officers resulted as follows: President, C. R. Thomas, Roodhouse; vice-president, R. O. Hawthorne, Roodhouse; secretary and treasurer, H. A. Chapin, Whitehall; censor (three years), H. W. Smith, Roodhouse.

C. R. Thomas, member of the board of censors, offered his resignation and upon motion the same was accepted. C. B. Foreman was elected to fill the unexpired term. H. A. Chapin was elected delegate and L. O. Frech alternate delegate to the State Society for two years. The president appointed the following legislative committee: L. O. Frech, R. O. Hawthorne and Howard Burns, after which the Society adjourned for dinner.

Called to order at 1:45 p. m.

Communications from the secretary of the state

board of health regarding "Baby Week" March 4th to 11th and "Baby Health Conferences" was read, and on motion the following committee was appointed to assist in the holding of the contest: F. N. McLaren, H. W. Smith, C. B. Foreman, H. W. Gobble and G. W. Ross.

H. W. Smith discussed the new state law which permits the levying of a tax for the building and maintenance of a tuberculosis sanitarium in each county. The subject was discussed at length by several present and the following resolution was introduced by A. W. Foreman:

Resolved, That the Greene County Medical Society endorse the act of the legislature authorizing each county to erect and maintain a sanitarium for the care of tuberculosis.

The same was unanimously adopted. On motion of H. W. Smith the officers of the Society were instructed to call a special meeting of the Greene County Medical Society to be held in White Hall at an early date for the discussion of the sanitarium.

The secretary reported the death of Dr. W. C. Day, and on motion H. W. Chapman was appointed a committee of one to present suitable resolutions, and the following were unanimously adopted:

WHEREAS, In the course of Nature our former friend and colleague, W. C. Day, M. D., of White Hall, having finished his labors on earth, has passed from the activities of this life; be it

Resolved, That the Greene County Medical Society desires hereby to record a sense of loss felt by all its members and to express its admiration of the many admirable professional and social qualities possessed by the deceased.

Further, In view of the great suffering endured by him so heroically for many years, we are thankful to a merciful Providence for his release; be it further

Resolved, That these resolutions be spread upon the minutes of this society and that a copy be sent to the members of the family of deceased.

On motion of R. O. Hawthorne the courtesies of the Society were extended to W. P. Elmer, W. D. Chapman and John Botkin.

Dr. W. P. Elmer of St. Louis read a paper on "Syphilis of the Cardio-Vascular System." The paper was a very carefully prepared and a most interesting one, and the pathological specimens were of unusual interest, showing clearly the effect of syphilis upon the cardio-vascular system. Upon motion, Dr. Elmer was extended the thanks of the Society. The paper was discussed by all present.

Censors reported Carrollton as next place of meeting, to be held Friday, February 11, after which the Society adjourned.

H. A. CHAPIN, Secretary.

IROQUIS-FORD COUNTIES

The Iroquois-Ford Medical Society met at annual dinner at the Iroquois House, Watseka, Ill., Decem-

ber 7, 1915. There were twenty-two members present. After dinner and smoke the members were conveyed in autos to the new Iroquois Hospital, where, after being shown through the hospital, the meeting was called to order by the president, R. N. Lane, M. D.

The minutes of previous meetings were read and approved.

Dr. Trezono's name was presented for membership and referred to board of censors. Dr. F. M. Blome was elected to membership.

The following officers were elected for the year 1916: President, Dr. Martha Anderson; vice-president, Dr. O. O. Hall; secretary and treasurer, Dr. D. W. Miller; censor, Dr. R. N. Lane; delegate to state society, Dr. George W. Ross, first alternate, Dr. S. M. Wylie; second, Dr. H. W. Wood; third, Dr. C. H. Dawsett; fourth, Dr. J. L. Shawl.

The first paper on regular program was read by Dr. C. V. Luke on "Asthma." Discussion was opened by Dr. S. M. Wylie, followed by Drs. Hall, Brown, Hilmer and Mellen, Dr. Luke closing the discussion.

"Practice Among the Eskimos" was presented by Dr. Bruce H. Brown and "Our Hospital," by Dr. George W. Ross.

On motion the following committee was appointed to draft resolutions expressing sentiments of the society regarding the new hospital to be presented to Mrs. Donovan: Drs. S. M. Wylie, T. N. Boue and O. O. Hall.

On motion the following committee was appointed to arrange for a clinic at our next Watseka meeting the first Tuesday in December, 1916: Drs. George W. Ross, Horace Gibson and W. F. Buckner.

On motion the society accepted the invitation to hold the next June meeting in Milford in place of Gilman.

The committee on resolutions presented the following: "We, the members of the Iroquois-Ford Medical Society, in convention assembled, after a thorough inspection of the Iroquois County Hospital, embracing as it does the latest and best of hospital construction, congratulate the city of Watseka and county of Iroquois on having such a splendid institution in their midst.

"Hospitals are the outgrowth of modern civilization. They are a necessity in every community. When they are properly equipped with the latest appliances to meet the grave emergencies of accident and disease.

"Hundreds of lives can be saved that would be sacrificed when patients have to be transported long distances before they can receive proper treatment.

"We especially commend as worthy of emulation the generosity and munificence of Mrs. Anna Donovan, whose liberal contribution made the erection of this hospital possible.

"It is to be hoped that her humanitarian spirit will find imitators in communities that have individuals who are able to build them if they realize their responsibilities to their fellow man."

Twenty-two members were present at the meeting. Meeting adjourned.

D. W. MILLER,
Secretary.

JACKSON COUNTY

The fourth quarterly meeting of the Jackson County Medical Society met in the Jackson Club rooms at Murphysboro, Ill., Thursday, December 16, 1915. This being the last meeting of the year the election of officers was in order.

The following officers were elected: Dr. Harriet N. Daniel, president; Dr. W. A. Brandon, vice-president; Dr. C. M. Thompson, secretary-treasurer; Dr. A. R. Carter, advisor. Dr. John Bennett was appointed a member of the board of censors.

The society was honored by having present Dr. C. C. Morris of the Baptist Hospital of St. Louis, who read an interesting paper on "Uterine Anomalies" and presented a specimen of a double uterus. A discussion by Dr. Molz of Murphysboro and Dr. Mitchell of Carbondale followed.

Dr. J. H. Hrabik then read a paper on "The Diagnosis and Treatment of Syphilis," which was followed by a lively discussion by many of the members present. Twenty members were present; visitor, Dr. O. B. Thompson, of Carbondale.

The next meeting will be held in Murphysboro, Ill., Thursday, March 16, 1916.

LOUIS R. WAYMAN,
Secretary.

LAKE COUNTY

The Lake County Medical Society held its regular monthly meeting in the Y. M. C. A. building at Waukegan, October 20, 1915, and from all reports it was one of the best meetings held by the society in years.

The Second District Medical Society of Wisconsin, comprising the counties of Racine, Kenosha and Walworth, were guests, as were also Dr. Clifford G. Grulee, Prof. Pediatrics, and Dr. N. Sproat Heaney, assistant professor of obstetrics, both of Rush Medical College, Chicago; Medical Director F. A. Berryhill, U. S. N.; Surgeon C. E. Ryder, U. S. N.; and Past Assistant Surgeon T. W. Raison, U. S. N.

The meeting opened at noon with a banquet served by the ladies of the Presbyterian church, after which Dr. Ullmann gave a very choice case report.

Dr. Grulee gave a very interesting talk on the subject of "Infant Feeding." He is an authority on this subject, and his talk contained many new and original ideas.

Dr. Heaney gave a practical demonstration of his machine for the administration of nitrous oxid in labor, followed by an interesting lecture on "Gas Analgesia in Obstetrics."

Following the papers a general discussion was held by the members. A vote of thanks was tendered Drs. Grulee and Heaney for their able and instructive talks.

Twenty-seven Lake County members were present. Next meeting will be held in Waukegan early in November.

Regular Meeting, November 18, 1915.

Regular meeting of the Lake County Medical Society was held in the Commercial Club Rooms, Waukegan, Thursday evening, November 18, 1915. Minutes of the September and October meetings were read and approved. Dr. Ullmann reported favorably for committee on arrangements.

The question of adopting a uniform minimum county fee schedule was discussed and same was left in the hands of the ways and means committee, who were instructed to prepare and bring before the next meeting of the society a specimen schedule.

Drs. Barker, Foley and O'Neil gave some very interesting case reports.

Sixteen members present.

Visitors: Drs. Bollman and Radcliffe.

Next meeting to be held in Highland Park, Thursday evening, December 9.

DR. C. S. AMBROSE,
Secretary.

MADISON COUNTY

The annual election of the Madison County Medical Society, held on December 3, 1915, resulted as follows: President, Dr. R. D. Luster, Granite City; vice-president, Dr. J. Bernard Hastings, Granite City; secretary, Dr. E. W. Fiegenbaum, Edwardsville; treasurer, Dr. R. S. Barnsback, Edwardsville; medico-legal member, Dr. S. T. Robinson, Edwardsville; board of censors, Dr. J. A. Hirsch, Edwardsville, to serve three years.

E. W. FIEGENBAUM,
Secretary.

UNION COUNTY

The Union County Medical Society was called to order by President A. J. Lyerle at 8 p. m. at the Stinson Memorial Library, Anna, Ill., December 8, 1915.

On roll call twenty physicians answered to their names, and the speaker of the evening, Dr. C. W. Lillie of East St. Louis, Ill.

Seven dentists, by special invitation, and Rev. W. O. Shewmacher, were present.

Meeting opened by invocation by Rev. W. O. Shewmacher.

Owing to some members wishing to leave on 9 o'clock train the regular order of business was dispensed with and Dr. Lillie being introduced read his most excellent paper on "Cancer," which was listened to with great interest by all present. Dr. Lillie brought out the point of most importance, that of educating the public about cancer and other diseases. He thought the proper time had arrived that the physician should teach the people so that they would not run off to every "quack" that came along. The paper was discussed by Drs. J. I. Hale, G. W. Morrow, J. A. Hale and R. A. Goodner.

After some discussion on the question of "Organization by Drs. Lillie, J. I. Hale, L. D. Keith and W. E. Lingle the following officers for 1916 were

elected. President, G. W. Morrow, Anna; vice-president, F. L. Lingle, Cobden; secretary-treasurer, E. V. Hale; censors, Drs. S. C. Martin and S. B. Norris, Anna, and W. E. Lingle, Cobden.

On motion Dr. Lillie was extended a vote of thanks for his able paper and was elected to honorary membership to the Union County Society.

After some discussion as to meeting time and program work the secretary announced his disappointment in not having the pleasure of introducing Dr. W. H. Gilmore, state secretary, at this meeting, and was instructed to try and get Dr. Gilmore to be present at the next meeting.

Nothing further to be brought before the meeting the society adjourned to meet on the last Wednesday of January, 1916.

E. VINCENT HALE,
Secretary.

VERMILION COUNTY

The Vermilion County Medical Society met in the city council chamber, Danville, December 13, 1915, and was called to order by Vice-President James. Minutes of the two preceding meetings were read and approved.

Drs. R. N. Sherman, Fairmount, and T. P. Williams, Westville, were unanimously elected to membership. The application of Dr. I. E. Burtnette was read and referred to the board of censors.

The secretary's annual report was then read, followed by the treasurer's report. On motion, they were accepted and placed on file.

Communication from the state secretary was read, in which communication he asked that as much money as possible be contributed to the legislative committee of the Illinois State Medical Society as they were in need of means to combat vicious bills which were being enacted by the state legislature. On motion, the society pledged itself to give \$20 to this cause.

Dr. E. E. Clark was elected "Advisor" to the medico-legal committee to report to Dr. C. B. King, 3938 Jackson boulevard, Chicago.

Communication from State President C. W. Lillie, asking for our approval of a plan for the reorganization of the medical department of the U. S. army, was read. On motion, we endorsed the plan and the secretary was ordered to fill out the blank form to that effect.

The program of the evening opened by a paper, "The Temptations of the Physician," by Dr. Geo. T. Cass. The paper was very interesting and some good reasoning was brought out on some important subjects. This being the "annual" meeting, the president's address was delivered by Vice-President James.

Election of officers for the coming year resulted as follows: President, Dr. A. E. Dale, Danville; vice-president, Dr. H. F. Dice, Ridgefarm; secretary-treasurer, Dr. O. H. Crist, Danville; censor, Dr. J. M. James, Henning; delegate to state meeting, Dr. R. A.

Cloyd, Catlin; alternate to state meeting, Dr. O. H. Crist, Danville.

After adjournment a buffet luncheon was served.

O. H. CRIST,
Secretary.

Personals

Elgin physicians held a banquet in honor of Dr. Harriett B. Ward, December 3.

Dr. Clarence M. Cheadle, Ashton, is at Nish, Serbia, recovering from typhus fever.

Dr. Warren R. Rainey, Salem, a member of the Chicago unit, has returned from Flanders.

Dr. Marion E. Reed, East St. Louis, has returned after eight years in the Samoan Islands.

Dr. Orie F. Schullian has been elected secretary of the Woodruff Memorial Sanatorium, Quincy.

Mrs. Bertha Logan, Chicago, has been elected superintendent of the Rockford Municipal Sanatorium.

Dr. H. J. Gahagan says the joke that bald headed men are never nutty is old enough to have whiskers.

Dr. Harry H. Whitten has been appointed local surgeon for the Aurora, Elgin and Chicago Railroad at Batavia.

Dr. Emil Lofgren, Rockford, has been elected president of the Winnebago County Antituberculosis Association.

Dr. Gottlieb A. Lurie, who has been on duty with the Rockefeller Commission in Serbia fighting typhus fever, has returned home.

Dr. Henry L. Metcalf, Mount Carroll, who has been critically ill with septicemia in the Freeport General Hospital, is reported to be improving.

Dr. John P. Benson has been elected president and Dr. Herbert S. Worthley, secretary, of the medical staff of St. Joseph's Hospital, Joliet.

Dr. William A. Clark sailed for Belgium, December 4, to be director of an American Red Cross unit at Hospital L'Ocean, La Panne, Belgium.

Dr. Philip S. Chancellor, who went to Europe last May as medical director of the Chicago unit, sailed from France on his return on December 25.

Dr. Wilfred H. Gardner, Bloomington, who has been serving as surgeon in a British Hospital in London for almost a year, sailed for the United States December 8.

Drs. Grant Houston, Herbert S. Worthley, James A. Clyne and Philip Le Sage have been elected members of the medical staff of St. Joseph's Hospital, Joliet.

Dr. Otto T. Freer delivered an address before the German Medical Society of New York on December 6. His subject was "Opening the Frontal Sinus Through the Nose."

Dr. Rollin T. Woodyatt of the Sprague Laboratory for Medical Research lectured December 8 in the amphitheater of the Cincinnati General Hospital on "Newer Aspects of Diabetes."

Dr. Frederick W. Werner has been elected chairman of the active medical staff of the Silver Cross Hospital, Joliet. Dr. Grant Houston has been elected vice-chairman of the staff and Dr. Roy B. Leach, secretary.

Dr. Solomon Jones, of Danville, formerly president of the Vermilion County Medical Society, announces that he is taking a year of post-graduate work in New York, after which he will limit his practice to diseases of the eye, ear, nose and throat.

Dr. C. St. Clair Drake, secretary of the state board of health, represented the board as delegate to the second Pan-American Scientific Congress at Washington, Dec. 27 to Jan. 8. On his return from Washington he contracted with New York firms for supplies for the Schick diphtheria test.

News Notes

—The 34,730 deaths in Chicago in 1915 give a death rate of 14.19 per 1,000 population as in 1914. The 1,112 deaths in the last week of December were largely due to the epidemic of pneumonia that swept the country from coast to coast.

—Plans for a \$1,000,000 addition to the Cook County Hospital which is to contain a model hospital kitchen, have been approved by members of the Board of County Commissioners.

—The supply of trained nurses and attendants is said to be entirely insufficient for the recent great demand. Nurses registries report many calls both in hospital and private practice that cannot be filled.

—A free dispensary has been opened in connection with St. John's House, Ridgely, Springfield. The institution will be open on Saturdays

from 10 to 12 o'clock, and a physician and nurse will be in regular attendance.

—Examinations for appointment in the Medical Corps of the Navy will be held on or about February 23, 1916, in Chicago and elsewhere. Full information may be obtained from the Surgeon General of the Navy, Washington, D. C.

—The town of Batavia was practically quarantined last month because of a diphtheria epidemic. All churches and schools were closed and all persons less than 19 years of age ordered to remain in their own homes whether they had the disease or not.

—The December grand jury in Chicago, impressed by the large number of crimes against children, recommended that the legislature be urged to pass a law similar to laws now in force in Indiana and Wisconsin whereby such criminals can be sterilized.

—The medical department of LaSalle City Library has recently been moved to the Hygiene Institute, LaSalle, and is now known as the LaSalle Pern Medical Library. The library has at present 703 bound volumes and about 100 unbound periodicals.

—The American Red Cross has inaugurated a campaign to secure 10,000 members in Chicago. At present the membership in the American Red Cross is 20,000 while the Japanese Red Cross has a membership of 2,000,000 and the German Red Cross of 1,000,000.

—Physicians Drug News and Office Practitioner has been acquired by The Critic and Guide Company and will be consolidated with The Critic and Guide beginning with January, 1916. The consolidated journal will remain under the editorship of Dr. William J. Robinson.

—The fresh air cars were withdrawn by the Chicago city council transportation committee just as we went to press last month. Our reference to the cars in the December JOURNAL had a lame Latin quotation which was promptly indicted by one of our classical readers.

—The building at Wood and Selden Streets, Chicago, erected at a cost of \$200,000 by Julius Rosenwald, housing the West Side Charities and to be used as a general administration building by the Associated Jewish Charities, was dedicated with formal ceremonies on November 28.

—The Twelfth Annual Conference on Medical Education, Public Health and Legislation will meet at the Congress Hotel, Chicago, February 7 and 8, 1916. February 9 the Federation of State Medical Boards of the United States and the Association of American Medical Colleges will meet.

—Examinations for the position of Assistant Surgeon in the Public Health Service will be held in Washington, D. C., and in the Marine Hospitals, January 24, 1916. For invitations to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

—Two Elgin physicians have figured in sensational cases recently. Dr. James M. Campbell and wife secured a divorce November 5 with a financial settlement by mutual agreement which was later reopened by Mrs. Campbell on the showing that he had disposed of mining stock for about \$200,000.

Dr. C. E. Sisson, divorced by his wife last summer, married a nurse, Miss Vollman, within ten days at Los Angeles. This marriage was annulled December 11 by Judge Shopen, under the Illinois law prohibiting remarriage within one year after divorce.

—The deaths in Chicago from January to November inclusive gave a death rate as low as the lowest ever recorded, 13.85 per thousand living, in 1904. And this included the 812 Eastland deaths. The prevalence of pneumonia in December prevented the city from having the lowest rate of any large city.

—Health Commissioner Robertson would like to have a physician and nurse in each public school, but the department budget will not allow this additional expense and it is hardly probable that the board of education will appropriate the amount necessary for this purpose, estimated at \$250,000, valuable as the services of the physicians and nurses would unquestionably prove.

—The Bollinger case is dragging its slow length through the press but nothing has developed of an unexpected nature. The attorney general recommended that States Attorney Hoyne bring the matter to the attention of the grand jury, but Mr. Hoyne held that the doctor in the case was within his rights in refusing to operate.

The ethical end of the case is being handled by the Chicago Medical Society in due course.

—A Polish paper prints the following cute little verse on swatting the fly:

Jada wloska, jada droga—

Siostrzyezke i brat,

I nadziwie sie nie moga,

Jaki piekny swait!

Singing this while swatting is said to make the flies much easier to swat.

—*The Madison County Doctor.*

—At the annual meeting of the Institute of Medicine of Chicago, December 7, Drs. Thomas J. Watkins, Robert B. Preble and Frank Cary were elected members of the board of governors for a term of five years. The annual address was delivered by the president, Dr. William E. Quine, on "Medical Teachers and Teaching," and Professor Stieglitz of the University of Chicago and Professor Kendall of Northwestern University spoke on the "Relation of the Institute to Medical Progress."

—At the forty-second annual meeting of the North Central Illinois Medical Association held in Peoria, December 18, Dr. James A. Marshall, Pontiac, was elected president; Dr. Frederick W. Wilcox, Minonk, first vice-president; Dr. David S. Conley, Streator, second vice-president, and Dr. George A. Dieus, Streator, was reelected secretary-treasurer. Two of the oldest medical men in the state, Drs. William O. Ensign, Rutland, and James Tweddale, Washburn, were present at the meeting.

—A memorial service for the late Dr. Green Vardiman Black, dean of the Northwestern University Dental School, who died August 31, was held in the Hotel LaSalle, December 14, by the Chicago Dental Society. Addresses were made by President Harris of Northwestern University, who spoke of Dr. Black as the dean of the dental department of that institution; Dr. Fred B. Noyes, who paid tribute to the student, investigator and inventor; Dr. C. N. Johnson, who spoke on "The Teacher and Writer"; and Dr. Thomas L. Gilmer, the subject of whose address was "The Man and Friend."

Marriages

ARRIE BAMBERGER, M. D., to Miss Amelia Miriam Hitzelberger, both of Chicago, November 25.

JOSEPH H. BLOOMER, M. D., to Mrs. Idella M. McDavitt, both of Quincy, Ill., November 17.

CLARENCE GILBERT GOODWIN, M. D., Chicago, to Mrs. Minnie Starr Grainger of Belvidere, Ill., November 24.

LOUIS VAN PATTEN, M. D., St. Charles, Ill., to Mrs. Caroline Gillette of Aurora, Ill., at Elgin, Ill., November 25.

CLARA PAULINE SEIPPEL, M. D., to Robert A. Widdowson, both of Chicago, in Minneapolis, December 11.

CLARENCE LEWIS WALTON, M. D., to Miss Clara Marek, both of Chicago, December 2.

Obituary

Charles H. Bushnell, M. D., was born in Chicago, April 30, 1860; died December 19, 1915; aged 55 years. Dr. Bushnell was educated in the Chicago Public Schools; was graduated from



CHARLES H. BUSHNELL, M. D.

Bennett Medical College, Chicago, in 1896. He was attending gynecologist, St. Anthony's Hospital and Orphanage; attending gynecologist Frances E. Willard Hospital; attending surgeon Chicago Union Hospital; attending obstetrician.

Cook County Hospital; head of department of gynecology and obstetrics, Bennett Medical College. He was a member of the Chicago Medical Society, Illinois State Society, and American Medical Association; a member of Oriental Masonic Lodge, LaFayette Chapter, Apollo Commandry, Medinah Temple, Mystic Shrine.



WILLIAM FRANCIS STOKES, M. D.

Internist, West Side Hospital; Instructor of Medicine, Chicago College of Medicine and Surgery.

Dr. William Francis Stokes, an honored member of the medical fraternity of Chicago, died at his residence, after a ten days' illness, on the morning of December 26. Comparatively few men ever occupy the place in the hearts of either the laity or the fraternity, held by Dr. Stokes. His genial good-nature, his sympathy for others, his willingness to serve, his humaneness, his loyalty, together with his skill, gathered to him a host of friends.

Dr. Stokes was graduated from Rush Medical College in 1897, since which time he lived and practiced in Chicago. He was a member of the Chicago Medical Society, The Illinois Medical Society, and the American Medical Association.

Dr. Stokes was a member of Cleveland Lodge A. F. and A. M., and also of Washington Chapter.

His remains were interred in Forest Home Cemetery, December 28.

Deaths

LEVI ORMSBY JOHNSON, M. D. University of Michigan, Ann Arbor, 1868; aged 74; died at his home in Chicago, November 15.

ALBO MILLER, M. D. Jenner Medical College, Chicago, 1904; aged 51; died at his home in Chicago, December 1, from heart disease.

ALFRED A. WEBER, M. D., University of Vienna, 1885; aged 57 years; died at his home in Chicago, Dec. 19, 1915; from heart disease.

LEOPOLD CHARLES SCHULKE, M. D. St. Louis College of Physicians and Surgeons, 1905; aged 32; died at his home in Decatur, Ill., November 19.

HENRY MILLER HEWITT, M. D. Rush Medical College, 1878; of Franklin Grove, Ill., and Chicago; died at the home of his aunt in Dixon, Ill., November 29.

GEORGE BESSON McCOSH, M. D. Rush Medical College, 1880; aged 58; a practitioner and druggist of Morris, Ill.; died at his home in that place, December 5.

JOSEPH D. TUTHILL, M. D. Bennett Medical College, Chicago, 1881; aged 87; a practitioner for more than sixty years; died at his home in Chicago, November 26.

FRANK JINDRA, M. D., Reliance Medical College, Chicago, 1911; aged 29 years; died at the Frances E. Willard Hospital, Chicago, Dec. 25, 1915, of acute nephritis.

MAXIMILLIAN BROENING, M. D. New York University, New York City, 1868; aged 75; formerly secretary of the Clinton County (Ill.) Medical Society; died at his home in Carlyle, Ill., November 3.

WILLIAM C. DAY, M. D. Missouri Medical College, St. Louis, 1861; aged 78; emeritus professor of obstetrics in the American Medical College, St. Louis; died at his home in White Hall, Ill., November 13.

JOHN WALLACE ALLISON, M. D. Cincinnati College of Medicine and Surgery, 1877; aged 62; twice a representative from Kankakee County in

the Illinois State Legislature; died at his home in Essex, Ill., December 4.

FRANCIS C. KIENZLE, M. D. Northwestern University Medical School, Chicago, 1909; aged 39; a Fellow of the American Medical Association; died in his apartment in Chicago, November 15, from paratonsillar abscess.

JOHN ANTIS, M. D. College of Physicians and Surgeons of the Western District of New York, Fairfield, 1837; aged 98; since 1845 a practitioner of Grundy County, Ill.; died at the home of his daughters in Mazon, Ill., November 25.

LAURA J. ROSS WOLCOTT, M. D. Women's Medical College of Pennsylvania, Philadelphia, 1856; aged 82; said to have been the third woman in the United States to receive a degree in medicine; died at her home in Chicago, December 8.

ELLIS HENRY BISHOP, M. D. Bennett Medical College, Chicago, 1905; aged 43; a Fellow of the American Medical Association; died at his home in Neponset, Ill., December 5, from an overdose of medicine taken for the relief of acute gastritis.

CARL MARTINUS NIELSON, M. D. University of Copenhagen, Denmark, 1885; Bennett Medical College, Chicago, 1893; aged 59; president of the Scandinavian-American Medical Society, Chicago; died at his home in that city, December 14.

JOHN CALVIN WEBSTER, M. D. Harvard Medical School, 1867; aged 72; a member of the Illinois State Medical Society; a veteran of the Civil War; for forty-eight years a practitioner of Chicago; died at his home in Chicago, November 15.

ADOLPH DECKER, M. D. University of Wurzburg, Germany, 1881; aged 56; at one time president of the German Medical Association, Chicago; noted as a chess player and composer of chess problems; died at his home in Chicago, November 20.

ERNEST DAVID DISBROW, M. D. Rush Medical College, 1880; aged 57; a member of the Illinois State Medical Society; formerly secretary of the Grand Rapids (Mich.) Academy of Medicine; died at his home in Chicago, December 4, from cerebral hemorrhage.

JOHN A. KIRKLAND, M. D. Jefferson Medical College, 1885; aged 59; a Fellow of the American Medical Association; for many years a mem-

ber of the school board of Cambridge, Ill., and a well-known ornithologist; died at his home in Cambridge, December 10.

JOHN A. BRILL, M. D. Cincinnati College of Medicine and Surgery, 1884; aged 64; a member of the Illinois State Medical Society and a well-known practitioner of the northwest side of Chicago; died at his home in that city, December 4, from cerebral hemorrhage.

WILLIAM A. GARNER, M. D. College of Physicians and Surgeons, Keokuk, Ia., 1885; aged 55; a Fellow of the American Medical Association; local surgeon of the Wabash System at Clayton, Ill.; died at his home in Clayton, November 14, from organic heart disease.

HENRY MANNING FISH, M. D. Hahnemann Medical College, Chicago, 1900; aged 62; a Fellow of the American Medical Association and American Academy of Ophthalmology and Otolaryngology; a well-known specialist; died at his home in Chicago, December 11, from pneumonia.

ARTHUR IRVING McCUMBER, M. D. Rush Medical College, 1905; aged 38; of Lewiston, Ill.; a patient at the Wilgus Sanitarium, Rockford, on account of nervous breakdown; threw himself under an interurban car about a mile from Rockford, November 20, and was instantly killed.

MERRITT WALTER HALL, M. D. Chicago College of Medicine and Surgery, 1910; aged 31; a Fellow of the American Medical Association; of Chicago; died at the home of his mother in that city, December 4, from the effects of poison believed to have been self-administered with suicidal intent.

DANIEL BERRY, M. D. Jefferson Medical College, 1866; aged 80; a veteran of the Civil War, in which he served as assistant surgeon of the Eighty-Seventh Illinois Volunteer Infantry; later a practitioner and druggist of Carmi, Ill.; died at his home in that city, November 19, from cerebral hemorrhage.

RALPH B. McCLEARY, M. D. Hahnemann Medical College, Chicago, 1878; aged 82; for nearly half a century a practitioner of Monmouth, Ill.; a veteran of the Civil War; coroner of Warren County from 1869 to 1880; died at the home of his daughter, in Monmouth, November 12, from senile debility.

FAYETTE KENT WALLER, M. D. Miami Medical College, Cincinnati, 1878; aged 68; a veteran of the Civil War; and for many years a practitioner of Wabash, Calhoun and Madison counties, Ill.; who had been an inmate of the Odd Fellows Home, Mattoon, Ill., for seven years; died in that institution, November 19, from cerebral hemorrhage.

JOHN ANDERSON DAVIS, M. D. University of Michigan, Dept. of Med. and Surg., 1873; aged 68; a Fellow of the American Medical Association; member of Illinois Central, Yazoo and Mississippi Valley Surgeons Assoc.; member of Illinois Central Railway Surgeons Association; District Surgeon Illinois Central Railway, 1899-1915; a practitioner at Deland, Ill., 1873-1877; in Pennsylvania, 1877-1884; at Deland, 1884-1899; at Farmer City, Ill., 1899-1915; died at his home, December 20, 1915, from arteriosclerosis.

WILLIAM S. HOLLIDAY, M. D. Louisville (Ky.) Medical College, 1874; aged 65; of Monmouth, Ill.; a member of the Illinois State Medical Society and for more than forty years a practitioner of Warren County, Ill.; county physician of Warren County from 1876 to 1882; and coroner from 1881 to 1883; for more than twenty-five years a member of the city council of Monmouth; died in the Monmouth Hospital, November 6, from pulmonary embolism, two weeks after an operation for appendicitis in which a gangrenous appendix was found.

NEW AND NONOFFICIAL REMEDIES.

During October the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

Mallinckrodt Chemical Works: Betanaphthyl Salicylate, M. C. W.

Merck and Co.: Betol; Bismuth Tribromphenate, Merck; Etylchloral Hydrate, Merck; Ethyl Bromide, Merck; Homatropine Hydrochloride, Merck; Sodium Cacodylate, Merck.

H. K. Mulford Co.: Hay Fever Vaccine, Mulford: 4 syringe packages (0.0025 mg., 0.005 mg., 0.01 mg. and 0.02 mg.) and 1 syringe package (0.02 mg.)

Merck and Co.: The Council has recognized Merck and Co. as selling agent for the products of Knoll and Co., described in New and Nonofficial Remedies.

The Council has also recognized Merck and Co. as selling agent for Kelene.

Heyden Chemical Works: Betol: Having been advised by the Heyden Chemical Works that Betol is no longer offered for sale the Council voted that it be omitted from New and Nonofficial Remedies.

Since publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies.

Mercurialized Serum, Mulford.—A solution of mercuric chloride in normal horse serum diluted with physiologic sodium chloride solution. It is proposed for the treatment of syphilis, particularly the cerebrospinal type. It is supplied as:

Mercurialized Serum, Mulford, No. 1.—One 30 Cc. ampule containing the equivalent of 1.3 mg. (1/50 gr.) mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 2.—One 30 Cc. ampule containing the equivalent of 2.6 mg. (1/25 gr.) of mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 3.—A package of ten 30 Cc. ampules each containing the equivalent of 1.3 mg. (1/50 gr.) of mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 4.—A package of ten 30 Cc. ampules each representing 2.6 mg. (1/25 gr.) mercuric chloride with rubber tube and intraspinal needle.

Mercurialized Serum, Mulford, No. 5.—8 Cc. mercurialized serum, Mulford, containing the equivalent of 22 mg. (1/3 gr.) of mercuric chloride in a syringe graduated in fourths, with needle.

Mercurialized Serum, Mulford, No. 6.—A package of ten syringes, each containing 8 Cc. liquid which represents 22 mg. (1/3 gr.) of mercuric chloride. H. K. Mulford Company, Philadelphia, Pa. (Jour. A. M. A., Oct. 2, 1915, p. 1185.)

Radio-Rem, Outfit No. 4.—An apparatus designed for the production of radio-active drinking water by the action of radium sulphate contained in terra cotta plates. It consists of two plates contained in 250 Cc. bottles; when the bottles are filled with water the two plates impart about 1.8 microcurie (5000 Mache Units) to the water in twenty-four hours. For action, uses and dosage refer to the article on radium in New and Nonofficial Remedies. Schieffelin and Co., New York. (Jour. A. M. A., Oct. 9, 1915, p. 1281.)

Histamine Hydrochloride.—The hydrochloride of the base beta-iminazolyethylamine (histamine). It is a valuable reagent for the standardization of pituitary preparations.

Imido, Roche.—A name applied to histamine hydrochlorid.

Ampules Imido, Roche.—Each ampule contains 1.1 Cc. of an aqueous 1 in 1000 solution of Imido, Roche (1 Cc. contains 1 mg.) Hoffmann-LaRoche Chemical Works, New York City. (Jour. A. M. A., Oct. 16, 1915, p. 1367.)

Betanaphthyl Salicylate.—The salicylic acid ester of beta-naphthol. It passes the stomach unchanged, but is split into its constituents in the intestinal tract. It

is believed to act as an intestinal antiseptic and to act in a similar way in the bladder. It is said to be useful in intestinal fermentation, catarrh of the bladder, rheumatism, etc. Mallinckrodt Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, Oct. 30, 1915, p. 1553.)

Betol.—A name applied to Betanaphthyl salicylate (which see.) Merck and Co., New York. (*Jour. A. M. A.*, Oct. 30, 1915, p. 1553.)

During November the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-Official Remedies:

Antiseptic Supply Company: Iodoapplicators, iodoapplicators, special; iodosticks.

The Bayer Company, Inc.: Iodothyryne Tablets, 3 grs.; theocin-sodium-acetate tablets, 1½ grs.; thyresol pearls, 5 grs.

Merck & Co.: Agar agar powder, agar agar shreds, berberine hydrochloride, calcium peroxide, ethyl salicylate, fluorescein, formic acid, mercury cyanide, mercury and potassium iodide, mercury succinimide, morphine meconate, osmic acid, sodium oleate, sodium peroxide, thiosinamine, urea, zinc peroxide (all Merck).

H. K. Mulford Company: Ampuls emetine hydrochloride, 0.005 gm.; ampuls emetine hydrochloride, 0.02 gm.; ampuls emetine hydrochloride, 0.04 gm.; ampuls mercury succinimide, 0.1 gm.; ampuls pituitary extract, ½ c.c.; ampuls quinine dihydrochloride, 0.24 gm.; ampuls quinine dihydrochloride, 0.5 gm.; ampuls quinine and urea hydrochloride, 1 per cent; ampuls sodium cacodylate, 0.1 gm.; ampuls sodium cacodylate, 0.2 gm.; ampuls sodium cacodylate, 0.5 gm.; ampuls sodium cacodylate, 1 gm.; purified tricresol, Mulford; scarlatinal trepto-serobacterin (Therapeutic).

Powers-Weightman-Rosengarten Company: Calcium peroxide, magnesium peroxide, sodium perborate; sodium peroxide, strontium peroxide, zinc peroxide (all P. W. R.).

Swans-Myers Company: Swan's staphylococcus bacterin (No. 37), Swan's streptococcus bacterin (No. 43), Swan's typhoid bacterin (No. 44), (Prophylactic).

Since publication of New and Non-Official Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

Bismuth Tribromphenate—Basic bismuth tribromphenate. It is claimed to be a non-irritant and non-toxic antiseptic and an odorless and efficient substitute for iodoform. It is said to be of value in gastro-intestinal catarrh, proctitis, dysentery, diarrheas, etc. Merck & Co., New York (*Jour. A. M. A.*, Nov. 13, 1915, p. 1731).

Butyl-Chloral Hydrate, Merck—A non-proprietary brand of butylchloral hydrate admitted to New and Non-Official Remedies. Merck & Co., New York (*Jour. A. M. A.*, Nov. 13, 1915, p. 1731).

Ethyl Bromide, Merck—A non-proprietary brand of ethyl bromide admitted to New and Non-Official Remedies. Merck & Co., New York.

Homatropine Hydrochloride, Merck—A non-proprietary brand of homatropine hydrochloride admitted to New and Non-Official Remedies. Merck & Co., New York.

Sodium Cacodylate, Merck—A non-proprietary brand of sodium cacodylate admitted to New and Non-Official Remedies. Merck & Co., New York.

Iodothyryne Tablets, 3 Grs.—Each tablet contains iodothyryne 3 grs. The Bayer Company, Inc., New York.

Thyresol Pearls, 5 Grs.—Each pearl contains thyresol 5 grs. The Bayer Company, Inc., New York.

Theocin-Sodium Acetate Tablets, 1½ Grs.—Each tablet contains theocin-sodium acetate, 0.1 gm. The Bayer Company, Inc., New York.

Ampuls Emetine Hydrochloride, Mulford, 1/12 Gr.—Each ampule contains emetine hydrochloride, 0.005 gm. H. K. Mulford Company, Philadelphia.

Ampuls Emetine Hydrochloride, Mulford 1/3 Gr.—Each ampule contains emetine hydrochloride, 0.02 gm. H. K. Mulford Company, Philadelphia.

Ampuls Emetine Hydrochloride, Mulford 2/3 Grs.—Each ampule contains emetine hydrochloride, 0.04 gm. H. K. Mulford Company, Philadelphia.

Ampuls Sodium Cacodylate, Mulford, 1½ Grs.—Each ampule contains sodium cacodylate, 0.1 gm. H. K. Mulford Company, Philadelphia.

Ampuls Sodium Cacodylate, Mulford, 3 Grs.—Each ampule contains sodium cacodylate, 0.2 gm. H. K. Mulford Company, Philadelphia.

Ampuls Quinine and Urea Hydrochloride, 1 per cent, Mulford—Each ampule contains 5 c.c. of a sterile 1 per cent solution of quinine and urea hydrochloride. H. K. Mulford Company, Philadelphia.

Ampuls Mercury Succinimide, Mulford, 1/6 Gr.—Each ampule contains mercury succinimide, 0.01 gm. H. K. Mulford Company, Philadelphia.

Calcium Peroxide, P. W. R.—A non-proprietary preparation of calcium peroxide admitted to New and Non-Official Remedies. Powers-Weightman-Rosengarten Company, Philadelphia.

Magnesium Peroxide, P. W. R.—A non-proprietary preparation of magnesium peroxide admitted to New and Non-Official Remedies. Powers-Weightman-Rosengarten Company, Philadelphia.

Sodium Peroxide, P. W. R.—A non-proprietary preparation of sodium peroxide admitted to New and Non-Official Remedies. Powers-Weightman-Rosengarten Company, Philadelphia.

Strontium Peroxide, P. W. R.—A non-proprietary preparation of strontium peroxide admitted to New and Non-Official Remedies. Powers-Weightman-Rosengarten Company, Philadelphia.

Zinc Peroxide, P. W. R.—A non-proprietary preparation of zinc peroxide admitted to New and Non-Official Remedies. Powers-Weightman-Rosengarten Company, Philadelphia.

Sodium Perborate, P. W. R.—A non-proprietary preparation of sodium perborate admitted to New and Non-Official Remedies. Powers-Weightman-Rosengarten Company, Philadelphia.

Formic Acid, Merck—A non-proprietary preparation of formic acid admitted to New and Non-Official Remedies. Merck & Co., New York.

Agar-Agar Powder, Merck—A non-proprietary preparation of agar-agar admitted to New and Non-Official Remedies. Merck & Co., New York.

Agar-Agar Shreds, Merck—A non-proprietary preparation of agar-agar admitted to New and Non-Official Remedies. Merck & Co., New York.

Berberine Hydrochloride, Merck—A non-proprietary preparation of berberine hydrochloride admitted to New and Non-Official Remedies. Merck & Co., New York.

Fluorescein, Merck—A non-proprietary preparation of fluorescein admitted to New and Non-Official Remedies. Merck & Co., New York.

Mercury Cyanide, Merck—A non-proprietary preparation of mercury cyanide admitted to New and Non-Official Remedies. Merck & Co., New York.

Mercury and Potassium Iodide, Merck—A non-proprietary preparation of potassium mercuric iodide admitted to New and Non-Official Remedies. Merck & Co., New York.

Swan's Typhoid Bacterin (No. 44), (Prophylactic)—Marketed in packages of three 1 c.c. vials and also in packages of six 1 c.c. vials. Swan-Myers Company, Indianapolis, Ind. (*Jour. A. M. A.*, Nov. 27, 1915, p. 1915).

Book Notices

A PUBLIC HEALTH SURVEY OF TOPEKA, Part I. The Topeka Improvement Survey. A report by Franz Schneider, Jr., Sanitarian, Department of Survey and Exhibits, Russell Sage Foundation, New York City. To the Topeka Improvement Survey Committee, Topeka, Kansas, May, 1914.

An inquiry into social and living conditions in the city of Topeka made for the purpose of basing a program of community advance upon the facts of local problems. Under the direction of the Department of Surveys and Exhibits, Russell Sage Foundation.

A SURVEY OF THE PUBLIC HEALTH SITUATION, Ithaca, New York, 1914. By Franz Schneider, Jr., Sanitarian, Department of Surveys and Exhibits, Russell Sage Foundation, New York City. Central Committee for Ithaca Survey, Ithaca, New York, 1915.

PUBLIC HEALTH IN SPRINGFIELD, ILL. A Survey by the Department of Surveys and Exhibits, Russell Sage Foundation, Franz Schneider, Jr. The Springfield Survey, Public Health Section. Department of Surveys and Exhibits, Russell Sage Foundation, New York City, May, 1915. Price, 25 cents.

A Study made in the city of Springfield, Ill., for the purpose of improving social and living condi-

tions. Instituted by the Springfield Survey Committee and conducted under the direction of the Department of Surveys and Exhibits, Russell Sage Foundation.

YOUR BABY—A Guide for Young Mothers. By Edith B. Lowry, M. D., author of "Herself," "The Home Nurse," etc. Chicago, Forbes & Co., 1915.

This little book was written for the benefit of young mothers, and has much information for them, written in a way they may read understandingly. It will do a great deal toward eliminating from the mind of expectant mothers much of "rubbish" they have gained from reading quack medical advertisements and like literature. It discusses briefly many of the erroneous impressions held by many women relative to child bearing.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES, for the Fiscal Year 1915. Washington Government Printing Office, 1915.

THIRTY-EIGHTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF NEW JERSEY, 1914, AND REPORT OF THE BUREAU OF VITAL STATISTICS. Patterson, N. J., News Printing Company, State Printers, 1915.

SMOKE ABATEMENT AND ELECTRIFICATION OF RAILWAY TERMINALS IN CHICAGO. Report of The Association of Commerce Committee of Investigation on Smoke Abatement and Electrification of Railway Terminals. W. F. M. Goss, Chief Engineer. Chicago, 1915. Rand-McNally & Company, 538 South Clark Street, Chicago, Distributing Agents of the Committee. Price per copy, \$6.00.

LABORATORY METHODS, with special reference to the needs of the General Practitioner, by B. G. R. Williams, M. D., and E. S. C. Williams, with an introduction by Victor C. Vaughan, M. D., L. L. D. Third edition, illustrated, with 43 engravings. St. Louis, C. V. Mosby Co., 1915. Price, \$2.50.

An exceedingly valuable book of laboratory methods for use, as stated, by the general practitioner. All the most commonly used tests are simply described, enabling the physician to perform practically all his own laboratory work in his office. It is not intended for laboratory workers.

DISEASES OF THE SKIN, by Henry H. Hazen, A. B., M. D., Professor of Dermatology in the Medical Department of Georgetown University; Professor of Dermatology in the Medical Department of Howard University; Sometime Assistant in Dermatology in the Johns Hopkins University; Member of the American Dermatological Association. 233 Illustrations, including 4 color plates. St. Louis, C. V. Mosby Co., 1915. Price —.

A new work on diseases of the skin, presented with special reference to the practicing physician. It fills the gap between the very brief and the larger works on diseases of the skin. Nothing special is to be noted, except the endeavor, in which the author has succeeded, of producing a book that is most suitable for student and general practitioner.

The illustrations are good and the bibliography is extensive enough for most purposes.

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THE ETIOLOGY AND PROPHYLAXIS OF CANCER.*

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CHICAGO, ILL.

While the form in which this communication is cast resembles that of an argument, it is not expected to prove anything. My aim is to present a few fairly well established facts that have led me to draw certain conclusions with regard to the etiology, and from these conclusions to formulate such recommendations of a prophylactic nature as they may seem to justify.

1. Carcinoma is most prevalent between the ages of forty and seventy years. It is seldom observed in children, and less and less often after the seventieth year.

2. In men carcinoma affects the stomach most often and the intestines next. In women it affects the neck of the uterus most often, the breast next and the stomach next.

3. Primary carcinoma does not attack healthy tissue, nor is it a disease of old age, although age may diminish resistance. It has some relation to a weakened local resistance of epithelial surfaces due partly to changes incident to chronic irritation and partly to changes connected with a decline or impairment of function in epithelial structures. We have an illustration of such chronic irritation in carcinoma of the lips and stomach, of decline or impairment of function or deterioration of structure in carcinoma of the breast and ovary, and of both in carcinoma of the uterus. Women bearing children frequently are not so often affected as those who have not conceived for a long time. The same is true of mice. (Dr. Maud Slyle.)

4. Occupation has a decided influence upon its prevalence. Chimney sweeps, hotel servants, industrial laborers, brewers, furriers, general la-

borers in cities and traveling agents are among those with a high mortality, while coal miners, farmers, teachers, clergymen, agricultural laborers, locksmiths, gas fitters, tanners, pressmen, compositors and printers are at the other end of the list.

5. Carcinoma is increasing in frequency both in this country and in Europe. The increase is chiefly in men and is greater in the alimentary canal than elsewhere. The coincident increase of gastric ulcer probably has something to do with it. A study of the Paris death reports for the years 1886 to 1905 seems to show that carcinoma of the uterus and breast were practically the same during that period, while carcinoma of the stomach increased from 21 to 46 per thousand and carcinoma of the intestine from 9 to 15. Cabot and others have demonstrated that a large proportion of internal diseases are diagnosed erroneously. It is not improbable that many deaths from carcinoma have not been diagnosed correctly in the past, and that with greater frequency of autopsies and a better knowledge of internal medicine more cases are now recognized than formerly. Carcinoma of the skin, which has probably always been diagnosed, has not shown any increase.

6. Carcinoma is more prevalent in populous districts, both urban and rural, than in newly settled areas, more among civilized people than savages, more in human beings than in domestic animals, more in domestic than in wild animals. Among domestic animals it is found most in cats, dogs, and mice who eat man's food and dirt, and least in sheep, who associate less intimately with man and do not eat his food. Dogs and cats have more stomach and bowel affections than sheep. The dog has his attacks of nausea, diarrhea, and constipation, while the cat is often seen to vomit and have fits.

Carcinoma occurs with relative frequency in people in prosperous surroundings, who either travel or associate with travelers and who eat

*Read before the meeting of the Western Surgical Association, Dec. 18, 1915.

foods brought from different places. Sailors have a comparatively high mortality, while fishermen in out of the way fishing villages often show a very low mortality. Furriers, who work with skins with the hair and dirt on them have a high rate of mortality, while tanners, who work with skins that have been through processes that would remove and kill germs have a comparatively low rate.

7. Carcinoma is to a certain extent a disease of locality. It is much more prevalent in the temperate zone than in the torrid and frigid zones, more in low and damp districts than high and dry ones. In localities quite near one another the incidence varies greatly according to local favoring conditions. For example Bela (Central b. f. Bakt., 1898, Vol. XXIV), gives the following facts about Luckau:

Its eastern suburb, which is low lying and marshy, being intersected by irrigation channels for market gardening, comprising 1,000 inhabitants, furnished 73 cancer deaths, or one in nine of its total mortality. * * * The cancer mortality of this suburb was four-fold that of the central part of Luckau.

In curious contrast with the foregoing, the high-lying and dry suburb of Sando, comprising 1,000 inhabitants, had not a single death from cancer during the whole twenty-two and one-half years.

Many similar observations are on record.

Gardeners have a rather low rate of mortality, yet one observer found that gardeners about Berlin had a high rate. This would seem to indicate that in this case some local influence was the cause.

8. Cancer hardly ever affects the pancreas, or duodenal ulcers, and but seldom the liver and spleen.

From these facts and others that are too well known to require special mention, I have drawn the following conclusions:

1. We are justified in assuming for argument's sake that carcinoma is an infection, and that it will not be a waste of time to make a review of facts and probabilities on this basis.

It is difficult in any other way to account for the extent of its unusual prevalence in one of the suburbs of Luckau and among the gardeners of Berlin, nor for a death rate of 9.5 per thousand in Sweden against 0.41 in Brazil, nor for its selection of chronic sores and non-functioning glands as sites of invasion, nor for the local effect of trypsin in cleaning off, and keeping clean, the ulcerated surfaces of invaded tissue. It is

also difficult to account in any other way for the greater relative increase of carcinoma in populous districts, both urban and rural, than elsewhere. In such districts there is more traffic and travel, and thus greater opportunities for the introduction and spread of infection.

The fact that a fresh wound in a healthy individual cannot be inoculated, while patients with carcinoma sometimes have secondary growths produced in fresh wounds indicates that there is a certain kind of immunity to the infection that such patients have lost. It is easy to conceive how cancer germs may find lodgment in an area of chronic inflammatory action where the circulation is impaired and the epithelial structure has deteriorated and may resist the handicapped immunizing process of the patient until it has established its own immunity. This is, in a way, the opposite of inoculating a patient possessing ordinary immunizing powers with an attenuated virus in order to establish his or her immunity to them. The necessity of overcoming the patient's immunity may mean a long incubation period as with leprosy, and makes it difficult to trace the infection to its source. There is nothing strange about the impossibility of primary inoculation since it is also characteristic of the bacillus leprae.

When a primary carcinoma is removed and a few slightly infected glands are overlooked the patient may recover the normal immunity and it may take the remaining germs anywhere from one to several years to overcome it. Or the immunizing process may have been stimulated to increased activity by the primary growth and may be able to cope with the few that remain.

2. Although carcinoma is sometimes inoculated into the skin or other external epithelial surface it is in a great preponderance of cases introduced into the system with the food.

Its comparatively frequent occurrence in the alimentary canal from the mouth to the rectum is convincing evidence of this. The frequent primary invasion of the breast, uterus and gall bladder in women can hardly be explained by its entrance in any other way. The liability of ordinary food to contamination by handling and exposure is shown by the following quotation from the *Journal A. M. A.* (Vol. LXV, No. 23, p. 2015).

Prof. C. H. La Wall, chemist of the Pennsylvania dairy and food commission, is said to have found the

following assortment of objects and substances in raisins exposed for sale on a Philadelphia street; pieces of prunes, beans and rice; strands of human hair and cat fur; cotton and wool fiber; straw and bits of bran; insect wings and legs; cigar and cigaret ashes, and a yellowed cigaret paper.

3. The human feces are carriers of germs of carcinoma both in individuals affected with the disease and in many who are not. The same may be said about the feces of the dog and the cat.

The occurrence of primary infection in the colon and upper rectum shows that the germs that get by the pancreatic secretions can survive to infect the rectum. If they reach the rectum alive they can, of course, be passed out and may find lodgment elsewhere. The comparative frequency of rectal cancer in dogs would make the same reasoning apply to them. The fact that dogs seldom have carcinoma of the bowels above the rectum would indicate that they are comparatively free from chronic lesions of those parts. In human beings who have no susceptible areas in the alimentary canal the same can, of course, occur. Such infections of the feces can be made to explain how chimney sweeps, who are frequently affected with chronic irritation of the scrotum and are probably not always over-cleanly in their habits, get the scrotum inoculated. Their occupation provides the lesion for inoculation. Infection of the feces can also be made to account for the frequency of carcinoma of the cervix uteri. Unless a woman washes the parts thoroughly, or takes a sitz bath, after each bowel movement, fecal infective matter will not infrequently be left on the perineum about the anus and in the overhanging vulval hair. As most women who have a chronic cervical lesion either examine themselves by indagation, or use douches or tampons or suppositories, or wear a pessary, or take local treatment, there are plenty of chances for such infection, in addition, of course, to that of coitus. We often find that the colon bacillus has spread to the vulva, urethra and vagina in these ways. In some cases the germ may be introduced into the vagina without having gone through the individual's own alimentary canal, but in view of the comparative infrequency of carcinoma of the skin I should say that such cases must be rare.

Infected feces are liable to contaminate the soil in manufacturing districts where the sewage is imperfect, and the fecal matter is not prop-

erly disposed of. This is particularly true in such neighborhoods as those in which mechanics live. Vegetable gardeners and small farmers near large centers have been known to use human excrement as manure.

4. Those who are most subject to carcinoma are those who work the most in dirt and eat the greatest variety of food. Thus chimney sweeps, industrial laborers in large town, city laborers, furriers and carpenters, all of whom have a high rate of mortality, work in dirt and have not always the means nor incentive for frequent washing; while pressmen, compositors and printers, whose working materials are protected from outside contamination, and whose surroundings are such that they can and do wash and clean up when they go to lunch and go home from work, have a lower rate. We can account for the fact that coachmen, city hotel keepers, and hotel servants and brewers have a high mortality, by their food. They eat of food of great variety and that has come from different sources and is liable to be contaminated. They are for the same reason liable to have lesions in the alimentary canal that render them susceptible.

Miners whose work although dirty is almost entirely below the surface contamination, whose food is simple and more or less sterilized by canning, and who in general live in small towns where they are not brought in contact with the great variety of people and infections, have a low death rate from carcinoma.

5. There are probably several factors that have some influence upon the increase of cancer in recent years.

The increase of railroad traffic may be supposed to have some effect in spreading infection through travel of individuals and through the enormous amount of cold storage food that is carried everywhere. Some of the travelers and some of the food must be infected.

The crowding of people in large towns, particularly in industrial centers, has been too rapid and too great for hygienic methods to prevent contagion and contamination except in those infections that are understood. A general recognition of the infectious nature of carcinoma would probably soon result in a decrease of the mortality as has recently been the case in tuberculosis and typhoid fever.

The increase has also probably some relation

to the increase of ulcer of the stomach, gall stones, mucous colitis, appendicitis and chronic intestinal diseases. These affections have become more frequent as a result of the increasing complexity and richness of diet during the past century. Pastries, candies, cakes, sweetmeats and fancy bakery food, nuts, unripe bananas, sweet potatoes, meat of all kinds, etc., are now within the reach of all but the very poorest classes, who do not have cancer as often as those in good circumstances. A hundred years ago sugar was scarce and expensive, and pastry, cake, ice cream, soda water, candy, and most of our sweet bakery stuff was either not invented or was too expensive to be used except in the smallest quantities. But now-a-days the children begin to ruin their stomachs with such foods both at meal time and between meals from a tender age, and those who can afford it are apt to keep it up until they acquire gastric or intestinal pathology and are put upon a diet.

A quotation from the article on sugar in the Encyclopedia Britannica will show the reasonableness of this assertion. "While in 1700 the amount (of sugar) used in Great Britain was 10,000 tons, in 1800 it had risen to 150,000 tons, and in 1885 the total quantity used was almost 1,000,000 tons." I suppose that Great Britain's stomach had to handle most of this. This was prior to 1885. A few statistical facts by V. L. Price of the National Confectioners' Association will enable us to realize how the consumption of sugar has in recent years kept pace with ulcer and carcinoma of the stomach.

The per capita consumption of candy in the United States is approximately thirty pounds per annum; that means 2,700,000,000 pounds of sweets are sold each year in the United States. There are factories which specialize in the manufacture of marshmallows, of high-boiled candies, such as stick candies, of lozenges, of sugar-coated confections and of chocolates, and some of the factories in their specialties have outputs of 40,000 to 50,000 pounds a day. Other factories make general lines, and many of them produce as much as 100,000 pounds of candy a day. There are also thousands of smaller factories scattered throughout the United States producing from 500 to 10,000 pounds a day.

(V. L. Price, "Candy Making an Art," in the *Chicago Evening Post*, Saturday, Sept 3, 1911.) While this growing complexity of food and abuse of sweets may not be the cause of ulcer, it may have some relation to its increase in frequency.

The fact that the very poor who are crowded

together do not always have as high mortality from carcinoma may be in part accounted for by the fact that their food (excluding that which is canned and therefore sterilized), is simple and does not so often produce susceptible foci as that of the more prosperous, and being simple and not brought from many distant sources is less liable to be contaminated with the carcinoma germ.

The fact that carcinoma has been observed to affect the obese and well fed and gouty individuals more often than thin people may be interpreted in the same way. The experiments of Dr. Maud Slye upon mice would seem to favor this view as to the greater susceptibility of the well fed individual.

W. Roger Williams has shown the mortality to be twice as great among well-to-do men having no specific occupation as among occupied males in general (p. 96).

Aschoff has shown that in the Berlin population cancer was of the most frequent occurrence in persons of independent means, living on their income or pension (Williams, p. 354).

Thus an increased local susceptibility due to modern conditions of life and the tendency of any infectious disease, the character of which is not understood to spread, seems to me sufficient to account for the increase after we have deducted the apparent increase due to former erroneous diagnoses.

6. Since duodenal ulcer is a more common lesion than gastric ulcer and yet seldom becomes infected with carcinoma, and since trypsin, which is poured into the duodenum also prevents continued superficial development of carcinoma on surfaces with which it is kept in contact, the question arises whether trypsin, or possibly some vegetable ferment or synthetic imitation, could not be used for the destruction of the disease or the production of immunity. Whether injections of trypsin or a similar substance into and around the carcinomatous mass, or into the afferent blood vessels or into the colon or the general circulation could be worked out so as to be curative, is perhaps worthy of serious thought, if not experiment. The well known work of Beard is significant, although it was used to support a theory and is not conclusive.

7. Dr. Maud Slye has shown that immunity and increased susceptibility may be inherited in

mice, and that in them some individuals exposed always develop carcinoma when local conditions favorable for its development are produced, while others never do. This would seem to explain why the presence of the causative agent in the food will successfully inoculate a chronic gastric ulcer in some patients and not in others. The probability is that most of us take it into our stomachs, although but few of us are infected. A healthy alimentary canal is one of the greatest safeguards against carcinoma, excepting, of course, natural immunity.

The foregoing conclusions have suggested the following recommendations:

1. Carcinoma should be considered an infectious disease.

2. Precautions against the spread of the infection should be taken by the community, as well as by the individuals affected.

3. Foods, particularly fruits and vegetables, should be protected from contamination at their source and in transit. All fruits and vegetables from general sources should be sterilized before being eaten, except such as have a complete covering or hard external surface that can, after a thorough cleansing, be removed. The use of human excrement as a fertilizer should be prohibited by law.

4. The disposal of human excrement in suburban and populous rural and manufacturing districts should be such as to avoid possible contamination of the surface soil. The feces of patients with carcinoma of the alimentary canal and pelvic organs should receive the same attention as those of patients from typhoid fever or cholera.

Women should be taught the infectious nature of normal stools with particular reference to keeping the perineum free from contamination. They should also be taught to spend a considerable portion of their time washing their hands.

5. The number of cats and dogs in populous districts should be restricted, and they should not be allowed to roam about the streets by day or night. The excess should be killed. Means should be taken for the extermination of rats, mice, cockroaches and other vermin. This should have been done long ago as a protection against the spread of other infections.

6. Individuals whose occupations are known to expose them to great risk of infection from

carcinoma should be taught that it may get into their systems either through the irritated skin or by way of the alimentary canal. They should be taught to keep the skin free from chronic lesions and should wash their hands very thoroughly before eating, and also to wash and disinfect their hands very thoroughly and change their working garments when they leave their work for the day. All workers in dirt should observe these rules.

7. That all epithelial areas affected with chronic irritation and erosion should be attended to, has already been emphasized by others. An attempt might also be made to prevent infection of ulcerated and eroded surfaces in the alimentary canal. Patients with such lesions should, of course, avoid all unsterilized food that might be contaminated. Whether it would be useful to give a large dose of trypsin or something with a similar catabolic or germicidal action once or twice daily in cases of ulcer of the stomach, or a pint or more of a solution of acetozone or alphozone, or some other non-poisonous substance that might be found to have a destructive action upon carcinomatous cells and parasites, is a question, I think, that deserves consideration.

8. Municipal authorities should put carcinoma upon the list of diseases to be reported in order that the patients may be traced and taught how to take care of themselves and their infected discharges, and that none of those living with them be allowed to handle foodstuffs for the market.

9. The blood of patients with carcinoma should be exhaustively studied with reference to the discovery of something that will increase immunity, for until we learn more about the germ, the establishment of immunity would seem to afford the best hope of preventing infections and recurrences.

10. The time would seem to be ripe for teaching the public something concerning the erroneous notions about diet that are prevalent among the idle rich and prosperous poor in order that they may stop manufacturing the serious forms of gastro-intestinal disease that have of late years shown such an alarming increase in frequency, the seeds of which are sown in adolescence and the fruits of which are harvested at maturity and in senescence. In this way the danger of infection by contamination might be greatly diminished.

11. Women who have not borne children for several years should be warned of the danger of developing carcinoma, and should not only be on the lookout for symptoms, but should submit to a pelvic examination at least twice a year until it is evident that the mucous membranes are healthy and are remaining so.

THE MODERN DIAGNOSIS AND TREATMENT OF CANCER OF THE STOMACH.*

CARL BECK, M. D.

CHICAGO, ILL.

With the progress of medicine and surgery, the treatment of different pathologic conditions changes. Every new invention or discovery in the field, not only of medicine, but any scientific line, changes also the treatment of disease. Although these changes are slow, they may be noticed and there may be a remarkable difference between technic and views even in such a short time as a year or two. It is therefore of great importance that from time to time such advancements should be summed up and brought before associations or assemblies of progressive physicians so that they may not stand still but march onward with the progress. Those who stand in the midst of the battle do not see as much of it as those who are somewhat away from it and have a sort of a review before them. So it is with the man who reviews progressive medicine. The man who is working in general practice is not aware as much of the general progress as the one who makes use of all the advancements, compares them and picks out that which seems to him the most useful and beneficial in some special field.

When we speak of "modern" we always mean the last few years, as the progress is so great even a few years make methods antiquated. In our time, changes come very rapidly. Modern inventions of transportation and communication as telegraph, wireless and the modern advancement of publication have made it possible that such changes are rapidly spread the world over, and consequently we have to review more often than in former times.

When I studied medicine, a text-book, even of such a conservative branch of science as anatomy

and an atlas, remained immovable as a text-book for several years, so that a few generations of students could make use of it. In our present day there is a new and better anatomy published every year and the student avails himself of the most modern.

After these initial remarks, it will be understood that the treatment of cancer of the stomach and intestines as it is practiced now in the most advanced places of treatment is to be considered. The present time is not very favorable for progress. War is tearing the scientific world of Europe to pieces. Most of the men who usually spend their energies and use their brains in advancing methods of treatment of disease are spending their time now on the battlefields, trying to save whatever the cruel methods of warfare spare. It is an unfortunate year for science; it is, to a great extent, barren of new thoughts, and countries where otherwise a great deal of scientific labor is performed, are now altogether silent. Hardly do they find enough material to publish their scientific journals. Most of them have stopped publishing scientific papers, and whatever they do get out is more of an excuse if it is not material connected with warfare.

The subject of treatment of cancer, therefore, in the last year has not found a great deal of attention in Europe. It is of secondary importance. Military surgery ranks foremost, and there is so much of it that it obscures the rest of the surgical work. The most modern, therefore, is what is done in this country and some in Germany where, notwithstanding the great strain put on the medical profession, still some scientific work is done.

Cancer of the stomach and intestines, the layman and the press tells us, is on the increase. There is an enormous lot of publications showing conclusively that the cancer numerically increases. It may be that there has been a large number of cancers in some countries before, in some, perhaps, larger, but the modern publicity has made it possible that the world knows about it more than before, and not least of all, is this due to the fact that the physicians have become more educated, that they are better able to recognize cancerous growths of those organs which are not visible or palpable, so that the diagnosis is more frequently made. These facts must be taken into consideration. It has been repeated

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so often and proven so often that the only method to treat an ailment successfully is to recognize it early enough before it has produced such destruction in the body that a cure becomes impossible. When a person already has destruction of the liver with metastatic processes in different distant organs, there is no thought of cure, as little as there would be a thought of saving a tree whose branches and leaves were withered and whose trunk is dying out, even if there was enough sap in it to give the appearance of life.

The human being can persist for a long time on very little, as long as the brain with its vital functions and some of the organs like the stomach, intestines, kidney and lungs are working, only to a small extent. There will still be a life, but when the minimum is passed, life will be extinguished. When we receive, therefore, a case for treatment where a large number of metastatic processes are present we might just as well acknowledge that the case is beyond hope.

In the treatment of cancer we may say that the disease can be cured as long as we can remove it. To remove it does not always mean with a knife, but to remove it from the body in some way. The damage done by the cancer is not only a local one but a general one. There are diseases in the body in which the local change of an invading noxa or harmful matter is small but in which the body in general is harmed to a certain extent, so that its functions are encroached upon. For instance: If a person pricks his finger with an infected needle, the local process might be a very minute one, a little redness and a little tenderness, but the microbic changes, the rapid development of microbes and their products are taken up by the body in general so rapidly that the whole system might be in what we call a state of general poisoning. This infringes upon the functions of the body—the appetite is lost, the secretion of the kidney is laid low, the action of the lung is increased to keep the body supplied with oxygen, the temperature is raised, the alkalinity of blood changes, the perspiration changes; consequently, the whole system is put out of gear and if the system can overcome these difficulties and the microbes do not increase to such an extent that they lay the body entirely low, the body will improve, and if we are able to paralyze by some action, like an antitoxin, the activities of the microbes, we will, with one sweep, remove

the noxious material and the body will recover. The action of a cancer is different. It grows as a small local trouble. Personally I have the conviction and I have also some proof in my hands that the cancer is due to some material brought into the body from the outside. In our research laboratory we have conducted experiments for some time which prove to us at least conclusively this one fact. I will not go into detail here because it is not the place for it.

Enough may be stated that for me and my associates it is a fact that the noxious material comes from the outside. It remains local for a good long while and although it affects the general system inasmuch as the changes brought about by this local growth will have their effect upon the cells and produce a debris which is again absorbed by the body, and has to be disposed of just like sewage. The effect upon the body is not very serious at first. In fact, it takes some time—months and years—before the body will show the effects of such a constant absorption. Should the development be more rapid, then, of course, the changes will be shown sooner, also will they show sooner when the individual is not in a first-class condition, but on the whole the time from the moment of the beginning of cancer until it develops is quite a long period. This is one of the greatest obstacles for early diagnosis of the case, but also one of the greatest helps for the cure of the case, since it takes a long time for a tumor to affect the body to that extent, that the elimination of these secondary changes would be impossible.

Another interesting fact about the cancer is that it grows from a small point in the shape of what we would call a cone, getting bigger and bigger all the time. To explain this a little more intelligently, I would take the cancer of the lip as an example. It begins with a small hard ulcer on the lip and then spreads in diverging lines towards the chin. It spreads very little as a rule in the beginning in its locality. The people, therefore, regard that small ulcer with very little apprehension and they are in danger of having their whole chin glands and lymphatic vessels through which the cancer grows already affected, when they become alarmed about the lesion on the lip. This is an unfortunate circumstance. The lip is one of those places which the patient has to use every hour of his life. Every

time he eats, speaks, every time he puckers his lips, he is aware of the change. How much more is this danger of overlooking the primary lesion in a case of the stomach or the uterus or the bladder where he has no chance to observe, himself, by any change except by symptoms? For the cure this growth in diverging lines is very unfortunate, because in order to remove this sickness we have to remove the whole cone or block.

Take again the lip for example. When the cancer has affected the glands underneath the chin, we would have to remove, in order to be sure, the cancer in one block, the lip as the apex of the cone and the whole chin underneath, and the bones as the base of the cone, provided this cone does not extend already down to the lower part of the neck, where the removal would be impossible because it would require the largest vessels to be cut and the patient could not survive. The fact that we have to eliminate all the cancerous tissues if we want to get a cure is admitted by the scientists all over the world.

Theoretically there would be two great ways open for us to achieve such an object. One of these methods has proven satisfactory. The other method is still under experiment and while there have been very good results reported, it is far from being satisfactory. The two methods are these:

First: The mechanical removal of the growth, if it is possible.

Second: The destruction of the same by biologic or chemical products.

The mechanical removal is best accomplished with a knife; the biologic way is still under experiment, and it is tried over and over again because it cannot be controlled so well as an experiment. It is difficult to state exactly where it stands. There is a universally accepted fact proven by evidence, that cancer, if removed early before the cone of that infection, of which I spoke of before, is too large or before it is so large that a part of it must be left behind, the operation affords a cure. We speak of a cure when the patient is free from disease after the operation, permanently. Of course the patients remain often apparently free from a recurrence of the disease for years even if the whole cone of disease is not removed, and many such cases have been reported as cures. This is due to the

fact that when a small portion of that cone of that disease is left behind it acts in the same manner as the initial cancer and becomes the starting point of a new cone of disease, which often takes a long time because the lymphatics at that portion may be very poor, a circumstance which may be very favorable for the patient, while the lymphatics at the original seat of a tumor were perhaps very good. In such a manner we have sometimes a freedom from disease for years. At any rate, the removal of the largest portion of the tumor is usually followed by the improvement of the patient, at least for a time. This is called a palliative operation and is recognized in the profession as one of the methods of treatment of cancer.

It is a well-established fact that when the largest portions of the tumor is removed, the organism has a breathing spell during which it can recover from some of the bad effects of the tumor, and then fight the invasion of new elements from the tumor with a little more vigor. Three or four operations are sometimes performed on such a case, each time causing some improvement, until ultimately, of course, the patient's vitality is so low that another operation cannot be performed.

Taking these facts into consideration and applying them to the conditions of the cancer of the stomach, we can see for ourselves how difficult matters stand here. In the cancer of the stomach the initial lesion spreads more or less in the stomach for a good long while before it develops into a large cone of secondary cancer. The lymphatics of the stomach are such that they do not favor a very extensive invasion in the beginning. There is only a small number of lymphatic vessels leading to each portion of the stomach and the glands are not so many as, for instance, on the neck or the groin or the abdomen retroperitoneally; therefore, the space of time between the original growth and an extensive secondary involvement of glands and distant organs is quite long. This would be extremely favorable for the treatment of the stomach if we could recognize and diagnose the cancer early, and on this point hinges the whole success in the treatment of cancer of the stomach.

I mentioned before that the lip is a place where the cancer can be recognized very early. In the breast of the woman the cancer is also very com-

mon and can early be recognized, therefore, the cancer of the lip and breast give the best results, not because the localities are different from the stomach; they are worse as far as secondary invasion is concerned, but the recognition of the cancer of the breast and the lip is so early that often the beginning of a cancer is already attacked by the surgeon before it has even had a chance to develop a cone of invasion. Also the diagnosis of cancer of the uterus begins to get into that shape since the propaganda of early diagnosis by the physicians have been systematically made. One cannot help acknowledging the great service of some of our scientists, gynecologists and pathologists, like Winter in Germany and Bloodgood in America. They have called attention to this early diagnosis and have constantly emphasized it until they have driven it home to every man to examine the uterus frequently after confinements for lacerations which appear suspicious; to excise a little portion of that uterus if necessary. Nevertheless, the diagnosis is not early enough. I may confess that in 26 years of surgical practice I have never had a chance to operate on an early case of cancer of the womb which I would regard as initial cancer except in a few cases in which I have made a diagnosis myself.

The next question to discuss would be: Is it possible to diagnose a cancer of the stomach early enough?

If it does not produce enough symptoms, how are we going to know that there is a cancer of the stomach? When the symptoms are such that there is an absence of hydrochloric acid, a bleeding from the stomach, or blood in the stool or even a palpable tumor through the skin; then we have no more an initial case; we have already an inoperable case, in all probability, but fortunately for most of the patients, cancer develops upon the base of ulcers and ulcers are a hobby for the surgeon. We have become so dexterous in our technic on operations of the stomach that we can treat the stomach like a lip; that is, we can look into the stomach with impunity. We do not need to do what some of the scientists advocate—to introduce a long tube into the stomach and at the end of which there is an electric bulb and look into the stomach like we look into the bladder or the rectum. This method is not only very difficult but very danger-

ous, since the introduction of a nonflexible tube through the esophagus is not an easy matter, and since we cannot see the whole lining of the stomach. Opening the stomach, making a little hole into it and introducing the tube directly, cystoscope or, still better, look into it directly, is far more advantageous. I have a number of times used this method to look into the stomach for an ulcer.

I have developed an apparatus through experiments. One was a little cumbersome; it consisted of three small electric lamps at the end of a tube, an apparatus which I constructed myself. The difficulty of this apparatus was, however, that it had to be connected with an electric lamp and it easily got out of order, as most of these apparatuses do, and are not working just when you need them. I gradually, however, changed the apparatus so that I had a small portable lamp in a handle, something as is used now commonly by the physicians to look into the throat. I had the idea at first that it was necessary to inflate the stomach in order to make it visible through this small apparatus for inspection, and it is really better, but it has its disadvantage, that when we begin to inflate it the difference of temperature on the outside produces a coat of sweat or vapor on the glass so that the glass becomes dull and the inspection becomes very difficult. I have, therefore, used it without the glass in most of the cases, drew up the stomach and lit the lamp and looked inside. I have found even this apparatus lately unnecessary. All I do is make an incision into the stomach, grasp the borders of the incision with what we call the Tuffier forceps and look directly with the naked eye into the inside. We can detect any kind of ulcer in this manner if we are not able to detect it with our fingers by palpation. Some of those ulcers are very superficial and are not infiltrated, consequently escape our observation, if we depend on our palpation alone. I, therefore, recommend very highly the direct inspection of the inside of the stomach for ulcer and I also recommend the inspection for the beginning cancer.

A cancer which is already of the size of a penny or the size of a dollar is, therefore, a well-established cancer. It gives an excellent prognosis for cure, for at that time it still may be a local process.

When should we do these operations for examination is the next question?

In every case where the people begin to complain about stomach trouble which does not yield to the ordinary dietetic methods, especially if they are over 40 years of age, although I have seen some rare cases of cancer of the stomach between 20 and 30. When a person, therefore, begins to have chronic stomach trouble, it is much easier, much less dangerous, much less inconvenient and much safer to open the stomach and look into it than it is to treat the patient with all kinds of remedies which have no value until we can palpate a tumor, whereupon we say, "Now the patient has a cancer," as if he did not have a cancer when we began our treatment. There are, of course, a large number of methods of diagnosis, among which the x-ray in our times plays an important rôle, which should be used at any rate, because the diagnosis of a cancer and ulcer can be made accurately by using these methods beforehand and the opening of the stomach might not be necessary in cases where other diagnosis is accidentally made which has been overlooked. Exploration of the stomach is one of the best and the only safe method to make a correct diagnosis. Besides, if found, the cancer can immediately be treated.

The next point to discuss would be the methods which we are employing to treat the case of cancer after we have diagnosed it.

Operative Technique.—The method of operation on cancer of the stomach does not differ materially from the method of operating on a cancer of the breast or lip or the uterus, as I have said before. The tumor must be removed in one block from the body. Sometimes we start with a periphery to remove this block, as in a cancer of the lip, where we begin the operation with the glands on the neck, and gradually lead up from the broad base of the glands to the narrow point of the cancer of the lip, but sometimes we begin at the cancer and go downward to the glands.

In breast operations we can use either way very satisfactorily. We begin either at the cancer of the breast and dissect gradually up to the glands in the axilla or we begin at the glands of the axilla and remove the cancer as the last, but in one piece. In the stomach we can do well either way. There is one thing, however, to be

said; that is, that the cancer is not operable any more when the glandular infection is far advanced. As soon as we can see and feel metastatic glands in the retroperitoneal space, we may be sure that the cancer has progressed so far that a radical removal is out of the question. We can then only hope to remove the largest portion and thereby retard the development of the cancer in the body and give the patient a palliative result.

The glands which drain the stomach are situated in the ligaments of the stomach in the gastro-hepatic or in the gastro-colic ligaments. This is very favorable for the extirpation. All we need to do is to clamp off between Doyen or similar clamps, the cancerous growth, far enough within the healthy tissue, resect it, suture both ends of the resected stomach, and make a gastro-anterostomy. The way we go about this in detail is individual, and while one method gives excellent results in the hand of one operator, the other one gives the best results in the hands of the other. That is all a matter of habit, experience and frequent use. The worst feature in these operations is that a man who has not acquired much experience experiments a great deal, uses every time another method, and never becomes familiar with any one enough to call it his favorite. This brings me to a point which I cannot emphasize too often; "that the operation should not be performed except by the men who have had a great deal of experience which they have gained, either as assistants at the side of a master surgeon before they started to operate on their own responsibility, or those who, by exceptional training, have gradually developed this as a specialty." The ordinary surgeon who has, perhaps, a chance to do an operation of that kind once or twice a year, never can make a success of it because within a lifetime he probably operates on only as many cases as the expert operates on within half a year. How can he develop operative ability, not to speak of the judgment in the individual case? These operations therefore will remain always properly in the domain of a specialist, a man who has years of experience in intestinal surgery and should, therefore, never be the domain of an ordinary surgeon.

When I spoke of the method of operation, I alluded to the most frequent seat of carcinoma,

namely, at the pylorus. There are carcinomata in other regions of the stomach, although not quite as favorable for the resection as the one at the pylorus. They must be treated by individual methods. The carcinoma of the small curvature of the stomach, for instance, is one of the most difficult cases to be treated. It requires a resection with a plastic of the stomach because the simple resection between clamps is not sufficient. The best way in this case will be to resect the carcinoma just like a tumor of the skin, starting at one point within an inch from the tumor and cutting it out from the stomach, ligating every vessel of the stomach, and finally removing with it the gastro-hepatic ligament with the glands. Then we have an open stomach without its upper wall and vessels. We have to supply this defect with a covering consisting of stomach, and that is best done by a plastic flap operation, as I have described many times before. I have not had a chance to do these operations very often because the tumors of the small curvature are not so frequent as the others and when they are diagnosed they are in such shape that radical cures are not very likely to be affected. Altogether I have had only two cases in the last four years in which I could make a safe and good resection of the small curvature of the stomach.

Still rarer is the cancer of the cardia and there it requires an expert to achieve a radical resection. When we make a diagnosis of a cancer of the cardia and we find that it is operable, and I must confess that I have found it only once, we have to make an operation somewhat similar to the resection of the spleen; that is, a temporary resection of the lower chest wall (Madelung). I have, as I said, done this operation once successfully. The patient recovered from the primary operation. She died, however, a year after from a very extensive carcinoma of the retroperitoneal space. The operations on the stomach for removal of malignant growths have been very much facilitated by the use of the Payr clamps, which allow us to make a very clean resection. I also have been anxious to use the instrument of Hueltl of Budapest, but have not been able to obtain it. I have seen, however, a very good resection with the instrument at the hands of Meyer of New York, and it impressed me as a very favorable method, in the hands of an expert,

although it looked almost like a formidable machine gun that he was using on the stomach, so much machinery that the average surgeon would be afraid to use it. When the operation, however, was finished, it looked very clean and very satisfactory.

Results.—About the results of the operations we could speak at some length. We would, however, have to bring statistics which not only include ours, but other people's cases, and here is a great difficulty because the personal equation and the personal amount of experience and judgment count a great deal; also the number and the amount of cases that a man has to operate on and the indication which he puts to himself as a guide. Most of the operators of great experience are improving their results every year, although they stretch their indications every year with the increased experience.

About 8 years ago I made a post mortem on one of the cases which I had operated upon 15 years ago which had been free from cancer of the stomach for 7 years, and I thought the cancer was recurring after 7 years when she developed an intestinal obstruction. To my surprise, I found no trace of cancer, but this obstruction was due to a simple scar formation and the patient would have certainly recovered if I had operated upon her for this obstruction. I removed the whole intestinal contents from that patient and sectioned especially the retroperitoneal glands and found no trace of carcinoma. This case was a proof to me that we can absolutely cure a patient of cancer of the stomach.

THE IMPORTANT ELEMENTS IN THE LEPROSY QUESTION IN THE UNITED STATES.*

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There are two propositions relative to leprosy in our country which, if true, it will be agreed, are of utmost importance. These are: First, total eradication of the diseases with us would eventually be accomplished by the establishment of a federal colony for the segregation and care of existing lepers, and, second, fear of leprosy by the people is found everywhere, and is so intense

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as to constitute a veritable leprophobia, which has worked great hardship to the unfortunate victims of the disease, and has seriously interfered with the rational treatment of the leprosy problem.

The validity of the first proposition will be evident after hearing the other papers of the evening on the clinical, bacteriologic, pathologic and sanitary aspects of the disease. The elaboration of the second proposition will comprise the substance of this paper.

The fact of the existence of an extraordinary fear of leprosy will not be questioned, but the reasons for that fear may not be so apparent. Everyone is familiar with the sensational manner in which the newspapers exploit the discovery of a leper; which fact, however, deplorable as conducive to the maintenance of a state of popular ignorance, is nothing more than a consistent carrying out of the principle of "news value" for the people. What the people want the newspapers aim to give. Every medical man knows how the unfortunate leper is hounded when his condition becomes known; how lacking in humanity is the treatment accorded him by the community; what needless expense the fear of him entails upon the city, county and state, and how the sanitary and police authorities are handicapped in the sane and honorable management of the situation.

The intensity of this fear cannot be accounted for on the ground of the disease itself. Leprosy is apparently not easily conveyed from one to another, unlike many other infectious disorders which are both common in occurrence and lethal in tendency. It may be disfiguring, but so also may be syphilis, tuberculosis and many other diseases of the skin. It is doubtfully curable, but this quality it shares with certain diseases which are everywhere prevalent. In fact, there is not enough in the disease per se to account for the universal leprophobia which exists today and which has come down as an heritage of the centuries. As an adequate cause something must be sought more potent in action and widespread in influence in both time and place, than the disease itself, or the knowledge of the disease.

This adequate cause is to be found in the biblical accounts of leprosy, for in these can be discovered all the requisite factors for the creation and maintenance through the centuries of a firmly grounded, universally distributed fear of leprosy.

The Bible, as the foundation literature of the Jewish and Christian religions, has been and is the most widely read book in the world. Its religious purpose has made belief in its contents imperative for millions, and the meaning of the contents has, for the most part, been determined by the path of least resistance, namely, literal interpretation. The leprosy of the bible is depicted plainly as a most dreadful affliction, easily communicated to others, demanding the complete separation of the victim from among the people. Hence we have operating through generations and centuries, because of the biblical accounts, a universal and more or less imperative belief in the awfulness of leprosy, this quality being arrived at by the simple process of literal interpretation of the scripture records.

That this literal interpretation of the passages in the Old Testament relative to leprosy is unwarranted and fallacious can be demonstrated fully. That the *zaraath* or "leprosy" of the Hebrews was not true leprosy, and that its significance was religious rather than medical, can also be shown. In fact, when the real meaning of biblical leprosy is known the *raison d'être* of leprophobia vanishes.

True leprosy is probably a very ancient disease. It is said to have originated in Egypt, "on the banks of the Nile." Early references, however, are rather uncertain. In the second century B. C., leprosy seems to have been described by the Greeks under the name *elephantiasis*. The term *lepra* appeared in the fifth century B. C. and was applied by Hippocrates to conditions of the skin characterized by scaling. The Greek historian Manetho, in the third century B. C., before the definite description of *elephantiasis* (true leprosy) and probably without knowledge of that condition, stated that at the time of the exodus of the Israelites from Egypt there were 90,000 among them afflicted with *lepra*. It is obvious that the Hippocratic *lepra*—scaling skin diseases—was meant. Not many years thereafter the translation of the Hebrew scripture into Greek—called the Septuagint—was made. In this the Hebrew term *zaraath* was rendered *lepra*. It cannot be doubted that the Hippocratic *lepra* was understood.

Therefore, at the opening of the Christian era, we find in use the terms *lepra graecorum*, referring to scaling skin diseases, and *elephantiasis*

græcorum, meaning true leprosy. We find also that the ancient Hebrew word *zaraath* has been given the meaning *lepra græcorum* by translation, and that the latter in return takes on the dreadful qualities which the biblical descriptions attribute to *zaraath*. From this time on, where ever the Septuagint version penetrates, the term *lepra* stands for a thing greatly to be feared.

In the first century of the Christian era true leprosy—*elephantiasis græcorum*—began to appear more frequently in Italy as the result of importation from the south and east. With the decline and fall of the Roman Empire the disorder spread over Europe and became so prevalent that in the seventh century leprosaria sprang into existence for the housing of the victims. By the 13th century nearly 19,000 of these leper houses were said to have existed in Europe and the British Isles. Laws of the most stringent sort were enacted, bearing on every social relationship of the leper, and he became as much an outcast as did the Hebrew victim of *zaraath*.

But it is highly improbable—it is indeed almost unthinkable—that the greatly feared “leprosy” of the middle ages was ever and always true leprosy. When one considers the confusion that existed among physicians concerning the disease, together with the crude medical notions that made up their general stock of knowledge; when one remembers that ignorance, superstition, war, famine, sickness, insanitation, general misery and privation, were the lot of the people at that period, it is reasonable to assume that many diseases of repulsive appearance were grouped with leprosy, and were put away in the leprosaria. Further, it is difficult to believe that sanitation and a desire to stamp out “leprosy” were the forces which led to the establishment of the leper asylums; a more plausible explanation is that gross fear of all repulsive skin conditions was the motive power, tempered somewhat by certain humane considerations.

One effect of the confusion in the clinical accounts of leprosy from the time of Celsus to the 15th century was to fix upon the term *lepra*—originally referring to scaling skin conditions—the significance of *elephantiasis græcorum*. By the sixth century so many terms descriptive of leprosy had been introduced that one is forced to conclude that the true disease was not clearly distinguished by the physicians of the period

from a confused conglomeration of skin disorders. As intellectual darkness settled over Europe, medical science was kept from extinction by the Arabian physicians. But, with respect to leprosy, these men, too, contributed to the confusion which enmeshed the subject. In their writings they considered the *dal fil* of the Arabians (which is the *elephantiasis* or *Barbadoes leg* of today) equivalent to *elephantiasis græcorum* or true leprosy, the mistake arising from the similarity of idea in the two terms, since *dal fil* means literally “elephant’s foot.” *Djudzam*, their designation for true leprosy, they rendered *lepra*. Thus after nearly twenty centuries of use and misuse, three originally distinct conceptions, viz.: *elephantiasis græcorum*, *lepra græcorum*, and *zaraath*, come to have a significance in common, namely, true leprosy. It is not surprising, therefore, that *zaraath* is rendered accordingly in the modern versions of the scriptures, and that the terrors of *zaraath* are thereby carried over to leprosy and are felt wherever the Bible is read.

But the *zaraath* of the Hebrews *did not signify leprosy*. It was, instead, a generic term covering a variety of skin disorders which were religiously rather than medically important. Time will not permit a full presentation of the evidence substantiating this assertion, but the principal points may be set forth briefly.¹

First, it is a mistake to credit the ancient Hebrews with great medical knowledge such as would be implied in the acceptance of any part of their laws as a truly sanitary code. Moses was a keen and capable leader of a nomadic nation not yet in the agricultural stage of evolution and so relatively low in the scale of civilization. That he was a great sanitarian, skilled in the recognition and prevention of harmful diseases, is scarcely reasonable. The sanitary features of the Levitical law are accidental rather than intentional.

The root meaning of *zaraath* is “to strike suddenly,” and in many places in the Old Testament it is used to express the idea of punishment by Jehovah. In the 13th chapter of Leviticus it appears as a designation of skin disturbances supposedly leprosy. The descriptions of these

¹—For a more complete discussion of this point see the author’s article on “The Leprosy of the Bible in Its Medical and Religious Aspects,” *The Biblical World*, Vol. XXXVIII, Nos. 3 and 4, 1911.

conditions—thirteen in all—will be found on close inspection to be too meager and repetitious to have value as delineations of a disease entity. Practically the same descriptive terms are applied to conditions in garments and in the walls of houses, which conditions were also *zaraath* or “leprosy.”

The isolation of the “leper” was for a brief period only, far too brief to have value as a measure looking toward the stamping out of such a disease as true leprosy. The cleansing of the leper was by formulæ and procedure exactly like those for the cleansing of the people of Israel from their sins, and, therefore, was a religious rather than a medical matter.

The “unclean” of the Levitical code had no reference to the meaning which we attach to that word. It signified instead, “unfit to associate with the worshippers of Jehovah,” or “unfit to participate in the worship of Jehovah.” The “law of leprosy” was for the purpose of determining “when it is clean and when it was unclean,” that is, it was to determine the fitness or unfitness of the individual for the worship of Jehovah. This “law of leprosy” is found in the midst of an extensive code—chapters 11 to 16—which deals with uncleanness in all its aspects.

The Hebrew notion of the “unclean” is but an expression of a religious principle called “taboo.” This principle is as old as the human race and is found in practically every religion, past and present. The taboo idea is essentially this: That there are things which cannot be touched without some harmful quality passing to the agent by the contact; and the person or thing so affected can convey the same disability to other persons or things by contact. Taboo objects are of two sorts, the holy and the unclean.

Zaraath was, therefore, merely a designation of certain disordered conditions of the skin which in the minds of the Hebrews rendered the person afflicted “unclean,” that is, unfit to worship Jehovah, and the victim was not allowed to mingle with others *lest they too, by contact, be made likewise unfit*. It is highly probable that many skin diseases were in the list, and among them may have been the *elephantiasis* of the Greeks. One condition at least was simple *dermatitis caloricæ* (Leviticus XIII, 24, American Standard Version). *Vitiligo* and *morphea* may have been in the group. Hippocratic *lepra* was probably

included. *Zaraath* affecting the head was especially serious, because the head has been regarded as sacred by many primitive peoples. Whatever the offending eruption may have been, it was regarded as terrible affliction sent by Jehovah, barring the victim from access to Jehovah, and, therefore, something that filled the hearts of the Israelites with unspeakable dread.

That the Hebrews had no idea of leprosy, as such, and its contagiousness, and that *zaraath* had a purely religious significance, is well demonstrated in the rabbinical commentaries on the Levitical law found in the Talmud. Here we discover, among other interpretation, that “leprosy” in a garment means nothing to the gentile possessor of that garment, but the Hebrew purchaser must be careful in buying it lest the leprosy pass to him; that the skin of sea animals does not become leprous; that the leprous bridegroom is free from his leprosy for the seven days of the wedding feast, and that twenty-three ends of members of the body do not become leprous from “raw flesh.” This last is significant since according to it a true leper with ulceration of the digits would be clean! Other items equally illustrative could be cited from the Talmud and Mischna.

To recapitulate, with reference to present-day leprophobia:

The disease itself is not sufficient to account for the intensity of this fear. It is due, rather, to a misconception of the accounts of biblical “leprosy,” these having been read and literally accepted by many millions from biblical times to the present.

This misconception has arisen gradually, largely through misunderstanding of terms and faulty translation from language to language.

It is not certain that true leprosy prevailed among the Hebrews; Hippocratic *lepra* was probably found with them.

The Septuagint gave Hippocratic *lepra* the meaning of *zaraath*, and thereby made it a thing to be feared.

During the early and middle centuries of the Christian era, by virtue of circumstances, true leprosy, *lepra* and *zaraath* became confused and finally identical in meaning.

During the dark ages “leprosy”—which included true leprosy, scaling skin conditions, and probably many sorts of repulsive skin disorders—

became very prevalent and was feared to such a degree that thousands of leper asylums were established as refuges. With the dawning of better knowledge in medicine this "leprosy" vanished almost completely.

The fear of leprosy today is but a continuation through the centuries of the fear which 2500 years ago attached to the *zaraath* of the Hebrews. Intelligent efforts to remove this popular fear must take cognizance of this fact and must endeavor to make plain the true (religious) significance of *zaraath* of biblical times, since therein will be found the tap-root of modern leprophobia.

THE CHRONIC RUNNING EAR.*

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CHICAGO

The chronic running ear is simply a continuation of the acute running ear, the causes of which are those of catarrh in any other part of the body. We are all catarrh specialists together, in the sense that a great part of our work and much special attention is paid to the treatment of inflammations of mucous membranes in one part or another of the body. These catarrhs, so-called, consist of irritations or inflammations of the mucous membrane coming from the reaction between the defensive forces of nature and the pathogenic microbes. Of these, by far the most common are the following, probably in the order of their frequency: The pneumococcus, staphylococcus, streptococcus, bacillus influenzae and, to a less extent, bacillus diphtheriae, pyocyaneus and many other pus forming microbes. The infections of scarlet fever and measles are also very common exciting causes.

Infection attacks the middle ear principally in one of two methods: First, and most frequently, by extension upward from the throat through the Eustachian tube into the middle ear cavity. Second, and this distinction is clinical rather than pathological, in the more general infections, where the catarrhal trouble attacks not only nose and throat, but the ear and many of the sinuses at the same time, as in the typical grippe, whether pneumococcal, influenzal, streptococcal, staphylococcal, etc., in acute infectious diseases such as measles, scarlet fever, smallpox and others.

Whenever an otitis runs into the chronic form,

there must be one or more of three factors contributing to this. First: There may be continued local irritation, as the presence of diseased adenoids, post-nasal discharge, pressure from polypi or other tumors. Second: There may be, and usually is, a condition of poor drainage and ventilation; thus the Eustachian tube may have been nearly closed from former catarrhal thickening; the disease may have located in the attic of the middle ear, or it may have extended not only to the middle ear proper, but to the antrum of the mastoid and even the ultimate mastoid cells. Third: As in any other chronic condition in any other part of the body, there may be a decreased resisting power of the general system, notably as in tuberculosis, many forms of anemia, general weakness from rundown condition after sickness, or accompanying any form of systemic trouble.

The pathology of these catarrhal attacks need not be here gone into, merely calling attention to the fact that in the majority of the chronic catarrhs the germ at fault is usually found well below the surface of the membrane in the various mucous glands.

It is unnecessary here to mention the symptomatology of the chronic running ear. The presence of the continued or recurring discharge makes the diagnosis. When this discharge is examined with the microscope it may be found to consist merely of mucus and pus cells, where none of the infecting organisms are found, or these germs may be easily discovered in a smear. Much importance attaches to the germ that is causative in these cases. Along with a search for the exciting organism, a smear should be examined for the presence of bone detritus, as it is above all necessary to know whether the infection has begun to destroy the bony tissue itself. Also one should be constantly on the lookout for the presence of cholesteatoma.

Many a case of otitis can be recognized as of chronic character from the very inception. Other cases so simulate the typical acute case that one has no means of recognizing on the start whether it will heal promptly or go into chronicity. The acute running ear, under proper treatment, should heal in from two to three weeks, only rarely taking any considerably greater time. If, then, such an otitis should continue for three weeks in spite of lancing and wick drainage, the doctor is

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justified in proceeding as though he knew it was to run for an indefinite period.

As regards the treatment, everything depends upon what the cause may be that keeps up the discharge. Just as in a case of vaginal leucorrhea, you may cure the inflammation by local applications, or be compelled to follow it into the cervix, urethra, endometrium, or possibly resort to tubal operations before the discharge is stopped; so with the chronic running ear. In the first class of cases, those caused by inflammatory adenoid trouble or the persistence of discharge from nasal catarrh across the mouth of the Eustachian tube, it will be at once apparent that the underlying condition must be rectified. The adenoid gland, if enlarged or if diseased, no matter how small, must be thoroughly removed. All conditions of the nose keeping up a constant discharge, such as hypertrophy of the turbinates, deflection of the septum, sinus troubles, whether accompanied or not by polypi, should be properly remedied. After these various operations the doctor can with benefit paint the mouths of the Eustachian tubes with silver nitrate solution or use the Eustachian catheter and inject, after inflation, a little 2 per cent camphor menthol, or both of these treatments. It will be found in a great many cases that the mouth of the tube is so sensitive to pressure of the tip that more can be done by simply painting with astringent preparations and using Politzer's inflation than by the use of the catheter. Much, however, depends upon the individual skill of the doctor in the use of this instrument. In connection with this treatment I have found much benefit to be derived from certain antiseptics in the external ear; this, however, only when the perforation of the drum membrane is of such size as to allow fair access to diseased parts.

One can draw out by an aspirating apparatus most of the discharge from the tympanum, and both through the Eustachian tube and the external canal the little cavity can be well filled with camphor menthol solution. In more stubborn cases after aspirating the pus I frequently inject the middle ear with silver nitrate solutions, in strength of from 5 to 10 per cent. In other cases, and often following the preceding treatment, the use of nosophene powder, which dissolves in the acid medium of the pus and finds its way pretty thoroughly to most parts of the dis-

eased membrane, has given me quite good results. Various other antiseptics, as for instance scarlet red, may be used. I would warn against the common practice of irrigating the canal of the ear with boric acid and other solutions. I believe that many a chronic running ear can be kept up by washings that would dry shortly under wick drainage.

It is comparatively rare, if a doctor is careful in his treatment, to find these simple cases of chronic catarrhal otitis that will not heal in a reasonable time. Unfortunately, however, it has been my experience that the overwhelming proportion of the cases are not so simple as this, that the disease has not only extended to the middle ear, but has involved the mastoid antrum and usually the entire mastoid cavity.

I make it a practice, and advise it to others, to have an x-ray examination made in every case of suspected chronicity. This, if properly done, seldom fails to show a distinct blur over the region affected. A thoroughly competent skiagrapher is essential in this work. I will not attempt to quote statistics, for I believe that nothing less than several hundred observations from various operators can give a fair estimate, but in my own practice more than four out of five cases of chronic otitis have shown under x-ray distinct evidence of mastoid inflammation. In such cases, one may or may not uncover a history of a typical mastoid attack. You are all familiar with the time honored descriptions of acute mastoiditis and recall the symptoms of pain on pressure over the mastoid antrum, fever, redness of skin, tenderness behind the ear, of the auricle forced forward by the inflammation forming behind it, and all specialists at least are familiar with the supposed pathognomonic symptom of sagging of the posterior superior canal wall. One must be on the alert, for perhaps only the last symptom may exist, and that to so slight a degree as to be noticed only by the trained aurist and usually only during an acute exacerbation of a chronic mastoiditis. The history may be extremely deceptive. Mastoid pain is frequently overlooked in the general headache or neuralgia. Perhaps the attending physician has not searched particularly to find the slight difference in tenderness over mastoid tip or antrum, I would emphasize the fact that just as in a large proportion of the cases of sinus trouble which cause the chronic discharge from

the nose, so in the chronic running ear a distinct mastoid inflammation may have existed for years without any of the ordinary symptoms named in the average text-book, excepting discharge. Pain over the mastoid is a symptom only of pressure, and if the cortex is thick and the pus has not worked through to the periosteum, absolutely no tenderness may be felt even on firm pressure. Redness and swelling of the skin is, of course, a symptom of external periostitis. In other words, the pus is already working through the external wall. Subjective pain is a symptom of pus under pressure. If this pus is formed in sufficient quantities to cause pressure upon the delicate nerve endings in the mastoid or middle ear, the patient may have severe pain. If, on the contrary, the drainage is free enough to carry off the pus as fast as it is formed, there may be no suffering whatever. On the other hand, pain persisting after proper lancing of the ear is very suggestive of mastoid trouble. It is not at all uncommon for perforation through the inner table of the skull to occur with so little pain that the patient does not recall it. I might also mention that very many physicians have made the mistake of diagnosing the external redness and swelling of a furuncular abscess as mastoiditis. An expert should not make this mistake, but no doctor who makes it a point to use x-rays early will ever be caught napping in this fashion.

Where, then, we find a chronic running ear that is kept up by the discharge from an infected mastoid cavity, and I would reiterate that these cases are the average ones that we see, it is futile to waste our time on ordinary treatment through the canal. These cases that run for months and even years are almost inevitably chronic mastoid infections. If cured at all by nature, it is usually by the slow process of complete sclerosis of the mastoid cells. The doctor who waits for this waits also until all effective hearing is destroyed, to say nothing of running the very great chance of brain infection. These cases require surgery and it has been a very great satisfaction to me, in my practice in the last good many years, not only to see the chronic discharge entirely disappear, but to find the hearing increased by from one hundred to one or two thousand per cent after mastoid operation.

The treatment of infected cavities in any part of the body is the same—drainage—and I believe

that when that has been thoroughly effected most other work is apt to be meddlesome. When the middle ear has become the drip cup to an infected mastoid, it is foolish to drain only the drip cup, and laughable to merely clean away the leakage from this drip cup into the external ear. Drainage must be employed where the discharge can be drawn away harmlessly, instead of allowing it to ooze over the most delicate part of the whole conducting mechanism, the inner membrane. No one hesitates about cleaning out an abscess of the neck; why should he hesitate over one in the mastoid cells? The operation, done in time and by skilled hands, is practically devoid of danger. A slight scar and depression hidden behind the ear is absolutely nothing as against the increased thickening of the inner membrane and ankylosis of the stirrup-bone, which means increasing and incurable deafness.

As to how much can be promised through operation in these cases, a little investigation is necessary. In the majority, perhaps, of these chronic running ears there are intermissions when the discharge entirely stops. If the hearing during the intermission is better than while the ear was running, you can confidently promise the patient that a simple mastoid operation will make permanent at least as good hearing as he had during the intermission. In the rarer cases, where discharge is continuous, a man must be guided by various tests by forks, washing, the Eustachian catheter, etc., but practically always improvement can be promised. The cases in which no improvement comes from simple operation are those where the ossicles have become ankylosed on account of the chronic inflammation extending around them. In such cases, perhaps more can be promised from the radical operation. In my experience in the last twenty odd years in this specialty I have found but one case where there was a fair amount of hearing before operation that was not improved by simple mastoid exenteration. In this case I found what the x-ray prepared me for and what I told my patient possibly existed, a complete sclerosis of the entire mastoid cavity, leaving only a small antrum, which was filled with well organized granulations. This case had been running for twenty years, and I secured no improvement either in discharge or in hearing, but it is the only such case in my experience. Attie perforation has since led to radical operation and cholestea-

toma has prevented me getting as yet a complete cessation of the discharge. I can report others of fifteen or sixteen years standing in which the hearing has been improved four or five hundred per cent and the discharge either entirely stopped or reduced to an insignificant amount.

The continuance of some discharge for a few weeks after a simple mastoid operation is rather the rule in cases where the ear has been running for a long time, i. e., for a year or more. This comes from involvement of the attic of the tympanum, which, of course, in the simple operation is not touched, yet I emphatically protest against the too frequent use of a radical operation in these cases. In my own practice I reserve this procedure for cases where I operate to save life or where there is no chance of improving hearing. Not that the radical mastoid does not frequently temporarily improve hearing (in fact I do not now recall a single one that I have done that has not given improvement for a greater or less time), but almost inevitably in such cases, when the ossicles and the entire drum membrane have been taken away and the diseased lining of the tympanum has been curetted, the membranes of the oval and round windows become gradually more like the skin of the surface of the body than the delicate membranes of the ear cavities, so that in the course of a year or so the hearing is often fully as bad as, and occasionally worse than, before the operation. I believe that not one simple mastoid operation is now done where there should be a hundred, but, on account of delay, far too many radical operations become necessary; in my own practice about one out of four.

This view should not in the least militate against the employment of this more thorough operation in the case of danger to life, from extension of the inflammation through necrosis of the bone to the meninges, causing meningitis, sinus thrombosis or brain abscess. It must never be forgotten that the inner plate of the mastoid cavity is distinctly thinner than the cortex. Especially in young people and in cases of large celled mastoid cavities is there very great danger of perforation internally into the skull cavity. How frequent these perforations are is perhaps somewhat of a guess. My reading, as well as my experience, would incline me to say that probably in one-tenth of all cases of marked mastoid involvement there is sooner or later extension to the in-

side of the skull. Certain forms of extension inward, such as subdural abscesses, frequently cause no symptoms whatever and are found only on operation. Nevertheless, they constitute a very great menace to life and if not promptly drained, usually extend and cause general or basilar meningitis, leading to death. Mastoid involvement is probably the commonest cause of meningitis.

In examining specimens you will notice that the cells of the mastoid cavity are, as a rule, larger at the tip of the process than in other regions, also that each mastoid cell drains through a very narrow opening into the cavity of the antrum. Thus it takes but little inflammation to close the drainage channel of one or more cells, and we have identically the same train of symptoms which follows the swelling of the mucous membrane of the appendix. Pus must force its way through this narrow channel or cause necrosis of the bone. Necrosis will take the path of least resistance, and the pus may work out on the surface, forming first a periostitis and then an abscess behind the ear, or, more frequently, it may burst through into the middle fossa of the skull, forming a subdural abscess and later meningitis, or possibly an abscess of the brain. If it occurs lower, the natural place for it to break will be over the lateral sinus, and we have as before, first a subdural abscess, which, if not promptly drained, will cause clotting of the blood in the vein and this in turn, as soon as it becomes infected, will cause general pyaemia and death. In children particularly, and young adults, a perforation of the tip cells of the mastoid may occasionally occur and pus drain down outside of the skull and form a deep cervical abscess internal to the sterno-mastoid muscle.

It has been claimed by quite a number of authorities that it usually requires about two years for a chronic discharge to lead to necrosis of the bone in the mastoid or tympanic cavities. This depends entirely upon the nature of the germ. Where the infection is of streptococcic origin, necrosis may come in a very few days. Where it is staphylococcic, the necrosis is very much slower, and it is still slower in the pneumococcic infections. Hence the prognosis must be gauged largely by bacteriological examination. There is no time to wait in a pure streptococcus infection and not much where there is a considerable percentage of this germ.

You have undoubtedly all found a very real trouble in influencing your patients for their own good in the treatment of any deep-seated conditions. Almost any person will permit the lancing of a superficial abscess, where he can see and feel the accumulation of pus. While he dreads even this slight operation, nevertheless he will have it done, as he can see the direct necessity for it. But when the abscess is inside of a bone where he feels only the pain, or, still worse, in cases where he notices only a flow of pus, so that his only annoyance is that of a chronic ear discharge, with so gradually increasing deafness as to hardly excite his apprehension, it may be quite difficult to secure the consent of the patient to the only means of cure. I always keep in my office a section of the temporal bone, so arranged as to show the topography of these cells. When I point out to a patient that there is pus down in the tip of the mastoid, that it must push its way through narrow channels the entire length of the mastoid process, through tiny openings into the antrum, then past the narrow chink between the ossicles of the middle ear and the wall of the attic and drain directly over the most delicate point at the oval window, upon the integrity of which his hearing absolutely depends, and that then it drains finally through an opening in the membrane into the external ear; when I show him that the use of medicine in the ear canal, with washings, etc., is essentially attempting to clean house by scrubbing out the vestibule without ever reaching even the halls, let alone the rooms of the house itself, the logic is rather conclusive and I do not have as great difficulty as before in securing his cooperation.

The wonder is often expressed that a little ear can run as long and hopelessly as it does. When one understands the anatomy thoroughly, the wonder is not that the ear runs so long, but that it ever stops. It is a great exhibition of the curative powers of nature to think that in certain cases of this kind nature does secure a complete subsidence of the inflammation and sometimes with a fair amount of hearing left. The chances against effective hearing without operation in these cases are enormous. If the operation is done early, before ankylosis of the ossicles has occurred, or marked thickening of the membrane of the oval window and the rest of the tympanum, the chances

of complete restoration to what we would call good business hearing are excellent.

In these days, when this matter is well understood among our better otologists, there is but little excuse for allowing a chronic running ear to persist until the hearing is destroyed. My principal object in reading this paper here tonight is to lead you who are the first men to see these cases to emphasize to your patients what the real cause of the continuance of discharge is, to show them why it is impossible to secure favorable results without operation, and to have this operation done as soon as is humanly possible, so as to avoid the marked interference with hearing, which is inevitable, as well as the serious danger to life, which is in a fair proportion of cases present.

It is inevitable that in disease of this sort there will be certain cases where but little, if any, improvement can be secured. These cases come under several heads. First, there are those where the discharge, either on account of its being markedly streptococcal or of long duration has led to considerable ankylosis and binding down of the ossicles by adhesions. In these cases no results need be expected in the matter of hearing, through simple mastoid operation, although the discharge can usually be at least nineteen-twentieths removed (you can see that clearing away the mastoid cells will remove at least nineteen-twentieths of the secreting surface). In such cases the radical operation may be required, which consists, as you all know, after the simple operation, of removing the posterior wall of the ear canal, the external wall of the attic, the drum membrane with the malleus and incus, and curetting the entire tympanic cavity, excepting the round and oval windows. This, carefully done, should stop all discharge, and as a rule the hearing is at least as good as it was before.

In another class of these cases we have the formation of cholesteatoma, a peculiar growth of epidermis growing into the bone forming pearly masses of epithelium and detritus. Where cholesteatoma is found in the washing it is usually idle to expect complete cure by a simple mastoid operation. It is a sure sign of necrosis and almost inevitably will be found in the attic, as well as the mastoid cavity. When so found it has practically already destroyed most hopes of hearing. In cases of cholesteatoma the only operation to be considered is the radical, as perforation into the brain cavity is very probable.

Again, in other cases of chronic discharge the necrosis may have gone inward into the petrous portion of the temporal bone and led to disease of the labyrinth, usually entirely destroying hearing and leading to serious danger of brain abscess. In these cases again nothing can be done in the way of relieving hearing and nothing but radical mastoid operation with careful treatment of the inner ear will cure.

In case of a chronic running ear where we find the canal of the ear occluded by polypi, you can practically always put it down for granted that there is disease of the ossicles. In these cases, as well, hearing has been very seriously and probably hopelessly impaired, and the simple mastoid will not as a rule prevent the further growth of polyp, although even here stopping of nineteen-twentieths of the discharge may put a stop to further polypous growth.

I have made no mention in this paper of the use of vaccines in the treatment of catarrhal discharge, for the reason that my experience has so far been inconclusive. I hope that the experience of others in this line will be brought out in discussion.

In conclusion, a brief resume.

Persistence of discharge from an ear treated by lancing and dry wick drainage is either, first, from continued infection and poor ventilation through the Eustachian tube, or, second, continued infection from discharge from mastoid cells and attic.

X-ray examination will settle the diagnosis. Early operation on throat or mastoid, or both, with proper after-treatment, will cure in the vast majority of cases. Ordinary washing and treatment with antiseptics in the canal is of itself of very little use.

Many patients will make light of our efforts in their behalf. They must first be educated. A few years ago the man who advised operation for chronic appendicitis was laughed at. Today to neglect to warn in this condition is culpable. People really value acuteness of hearing highly. Danger to life is by no means slight in mastoid infections. Early operative treatment of this "appendicitis of the brain" is just as urgently required as in appendicitis of the abdomen and we will soon be held accountable for not recognizing this condition and advising operation.

7 West Madison Street.

SOME ADVANTAGES OF THE INDIAN INTRACAPSULAR CATARACT OPERATION.*

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In offering some observations on the relative advantages of one cataract operation over others one should not be influenced by a single case, but should know something of the general results in the various operations now in use among experienced men, and with such a knowledge his conclusions are less likely to be biased and his statements faulty.

Anatomically the difference in the operations now in use is quite considerable and the results are the measure of the value of each.

In the operations most men in America perform, section of the capsule of the lens is necessary and the lens is expressed through the rent in the capsule and the latter allowed to remain in position.

The usual operation consists of a flap incision carried up into the conjunctiva and subtending about one-half the circumference of the cornea. This allows more shrinkage of the flap causing a greater convexity horizontally than vertically producing on an average of 3 dioptries of astigmatism in the vertical axis. In some cases it is as much as 6 dioptries, while the incision in the Indian operation is wholly in the cornea except at puncture and counter puncture where it is 1 mm. behind the limbus. The section of the cornea is made at an angle of about 30 degrees forward of the plane of the limbus, and therefore wholly within the clear cornea, this being much more nearly radial allows of less shrinkage in the flap and the maximum astigmatism reported by careful observers is less than 3 dioptries.

The lens may be removed at a much earlier date in the course of ripening in the intracapsular method than would be possible in the operations which open the capsule. We can thus save the patient a period of blindness which is valuable to him.

The complete removal of the lens prevents the formation of iritis due to the presence of lens matter in the aqueous chamber. This usually complicates the average operation where the lens

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capsule is opened. Iritis which results from the presence of lens matter in the aqueous chamber is a serious complication and is painful to the patient and acts as an incitant of adhesions of the iris to any structure it may touch. I have seen it adherent to the opaque capsule in a case operated on in a certain well known clinic. In this case it was a source of pain and irritation for nearly a year. In a second case I saw the adhesions to the flap and to the lens capsule two years after it had been operated on by the older methods.

The removal of the capsule intact as in the Indian operation prevents iritis, there being no lens matter to set up the inflammation.

It is usually painless after the first few hours and gives but little trouble to the patient at any time.

The formation of secondary cataract in cases where the lens has been expressed from its capsule is quite common; not every case to be sure, but it occurs with a certain frequency, differing somewhat with different operators. This requires a second operation which is not welcomed by the patient.

The chimera that is pointed out by those who are ultra-conservative—the loss of vitreous—has been shown to be as infrequent in the Indian operation as in the older operations. Not only so but it is as slight in amount in the Indian operation as it is in the more common operation.

The following cases illustrate the Indian operation and the results obtained:

Case 1. Mrs. Elizabeth A., aged 74 years. Cataract in both eyes, with the right more advanced. Operation by the Indian intracapsular method April 15, 1915. No complications, no pain, patient got 20/25 vision for first post-operative lens after a lapse of five weeks. Is able to read or sew with ease, and can see very well at a distance. I might add that there was less than 1 dioptré of astigmatism in this case.

Case 2. Mr. Geo. W. A., aged 60 years. Total loss of vision in left eye seven years previous to operation; right eye totally blind only two years.

Lens in left eye looked quite yellow. Operated on left eye May 3, 1915, by the Indian intra-capsular method and patient rested well after the first few minutes following the operation.

Patient left hospital after two weeks with plus 10 lens and in the fourth week returned and was fitted to see 20/30 and read J. iv. with ease.

Case 3. Dr. J. J. T. Operation by the flap and capsulotomy method on the left eye two years ago by another surgeon with a history of long painful after

treatment and the end result being adhesions to the corneal wound and capsule. Operated on by the Indian intracapsular method May 16, 1915, with a nurse as assistant. Patient complained of some pain for a short time but soon became comfortable and went home from the hospital on the 8th day. No complications. Vision with correction is 20/30.

Case 4. Mr. Joseph G. C., aged 73 years. Both lenses cataractous, the right eye being the more advanced. Operated on right eye July 13, 1915. No complications. Lens a tumbler. Removed it with the hook and spoon with no show of vitreous.

The claim is often made that a trained assistant is necessary to make this operation a success. In my first case I had the family physician to assist me by holding the eye open with the lid elevator, and in the second case my office nurse assisted in the same capacity, while in the third case the nurse who assisted me had not done so before and in the fourth case my assistant was a young physician who had just come into my practice as a student assistant.

DISCUSSION

Dr. Hughes: As to the final result and permanency, the Indian cataract operation is practically ideal as the final result is the cataract is removed in the capsule. The only question that comes up is the question of safety. I was very fortunate a few years ago in seeing Smith do this operation. If I could do it with the skill that he does I would never do any other operation. He said that the loss of vitreous was not so serious as we thought it was, and when it does occur it is not always a serious complication. As in the old operation, we sometimes lose vitreous and there is good results. For those who have done this operation and studied it it is probably as safe as the old operation.

Dr. Lillie, East St. Louis: It seems to me that the chief value of a paper of this kind is to call attention of those who need the aid of an eye man. It appears to me that in hearing papers of this kind on interesting subjects which the general practitioner has now abandoned to the expert the results will be in proportion to the earliness of his diagnosis or the early period which he presents to the skilled man and that I assumed to be the intentions of Dr. Edmondson.

Dr. Edmondson (closing): In studying these cases it was with Fisher of Chicago that I first became acquainted with the actual practice of this kind. When he first returned from Europe I saw him operate at the Illinois Charitable Eye and Ear Infirmary. As far as the trained assistant is concerned I found the only thing they had to do was simply to hold the eye lids open, standing on the opposite side of the patient and holding the eye lid open like grim death. It doesn't matter what occurs, the assistant must hold that open, off the eye ball. I told the nurses to hold them, no matter what happened, and they did it, too—they had this in their mind. The essential thing is

the angle at which you make your incision. It takes less pressure to remove the lens in the capsule than it does to press out the lens and leave the capsule in. I tried that in numbers of cases—just by the sense of touch. It requires less difficulty—less experience than it does to press out the lens of the capsule. We learn in Germany that we can lose as much as nearly one-third vitreous and still have useful vision. But the loss of vitreous is something like five per cent. in the latter methods. It is a matter of being able to hold the retina on the posterior parts of the eye.

SWIMMING POOL CONJUNCTIVITIS.*

HARRY S. GRADLE, M. D.

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In 1899, Schultz¹ reported a series of conjunctival infections that apparently had their source in a swimming pool. He believed it to be a form of trachoma, which was disputed by Fehr² a few months later. On the basis of continued treatment, the latter regarded his cases as a "clinically characteristic, contagious conjunctivitis, very similar in its initial appearance to trachoma, but radically different when judged from the clinical course. This disease was not mentioned again for thirteen years until Huntzmüller and Paderstein³ reported a series of fourteen cases. Judged from the standpoints of history and geography, it was unlikely that these were true trachomas, but rather an endemic infection of the conjunctiva acquired in several of the swimming pools of Berlin. All of the affected individuals were young adults and in the majority, the disease was unilateral. Three years later, four of the cases were found to have thickened lids (although without conjunctival changes), similar to the trachomatous complication and slight vascularization of the cornea. Cell inclusion bodies microscopically identical with the Prowaczek-Halbevestädter Chlamydozoa, were found in conjunctival scrapings from the fresh cases and could be transmitted to apes. From their investigations, these authors concluded that they were dealing with an infectious disease of the conjunctiva, but could not decide whether it was a disease *sui generis* or a low grade trachoma.

Brown⁴ reported five hundred cases that had appeared in Philadelphia during the summer of 1914. The source of infection was traced to various baths in a restricted area. The disease assumed more of the character of a "pink-eye"

rather than a trachoma and was of short duration, the average length of time under treatment being three days. The period of incubation was assumed to be twelve hours, because all of the cases became bilateral within that length of time. In one case there appeared a corneal ulcer (probably due to secondary infection), the only complication among the entire five hundred. The bacteriological findings in the few cases thus examined were so varied as to be entirely without value, nor was any mention made of search for the inclusion bodies. Evidently, this epidemic reported by Brown was of an entirely different character from the one that occurred in Berlin and was probably an acute infection wherein the etiological factor was not recognized.

During the summers of 1914-15, I saw 18 cases of acute infection that I was forced to classify under the heading of swimming pool conjunctivitis. The majority of these occurred in young adults and a large percentage gave a direct history of the disease appearing within 3 days after swimming in a confined pool. The majority had used a large church center natorium; several, a smaller pool, located in the slums; and two, Y. M. C. A. pools in cities other than Chicago. Four of the total number had been in Lake Michigan, but not in any indoor swimming tanks.

Smears from all of the cases were examined with methylene blue and gram stains for the bacteria usually found in infected conjunctival sacs. In a few, there were found staphylococci, xerosis, and Morax-Axenfeld organisms, but nothing that could give rise to the clinical picture present. Almost half of the cases were examined by scraping the conjunctiva and staining the smear with Giemsa; where silver nitrate had not been used, the cell inclusion bodies were always found; but even infrequent use of silver caused a rapid disappearance of these bodies.

Clinically, the picture was about as follows:

In the earlier stages of the disease, occasionally unilateral, but frequently bilateral within a week.

Moderate photophobia.

Small amount of muco-purulent secretion, particularly at night.

Moderate edema of the lids.

Tarsal conjunctiva slightly swollen and roughened. Coarse injection with individual vessels

*Read before the Chicago Medical Society, Dec. 1, 1915.

standing out prominently. No distinct hyperplasia of follicles. These symptoms increasing as the transitional folds are approached.

Conjunctiva of the transitional folds more swollen, with a smoother surface and deeper red color. Injected vessels lose their individuality. On eversion, the conjunctiva presents the rugæ-like appearance characteristic of the rectal mucosa.

Bulbar conjunctiva slightly edematous and swollen. Moderate coarse injection beginning at the transitional folds and decreasing toward the cornea, so that the limbus is surrounded by a zone of normal appearing conjunctiva. Caruncle participates only slightly in the conjunctival infection.

Cornea normal.

Under treatment, the disease loses its severity in less than a week and assumes a more subacute form. The discharge lessens and the conjunctiva becomes pale. As the treatment is continued, first, the bulbar conjunctiva becomes normal, followed within a short time by a resumption of the normal appearance of the tarsal conjunctiva. The disease is apt to remain in the transitional folds for some time after this has occurred and unless treatment be continued, will frequently undergo an acute exacerbation. Under ordinary conditions, the life of the disease is about three weeks.

The best treatment that I have been able to find (and I have tried everything I could think of), was 1 per cent. silver nitrate, daily, and argyrol 10 per cent., three times a day, or more. The silver nitrate seemed most effective when dropped directly into the conjunctival sac; for forcible closure of the lids, spread the caustic into the depths of the transitional folds, the parts most affected. These were not reached by simply brushing the fluid onto the everted lids.

In no case was there an involvement of the cornea or irritation of the deeper structures of the eye. Several times, treatment was stopped too soon and a subacute exacerbation occurred. But these usually yielded to continued treatment. In one case, the disease persisted—a chronic form—for over six months. The patient was a young girl of a neurotic temperament and in a physically poor condition. Two per cent. ichthyol and massage finally overcame the trouble, al-

though this treatment was without avail in several other cases.

These cases would seem to coincide with the three reports from Berlin and form, I believe, a definite clinical entity. In its acute stage, the disease unquestionably resembles a fresh subacute trachoma; but the clinical course soon differentiates the two. Corneal complications did not occur in this series of cases and if we consider the inclusion bodies as probable etiological factors, never will occur. These bodies seem to be constant during the early stages of the disease, but disappear rapidly upon treatment. Whether or not they are to be regarded as positive etiological factors, time alone can tell.

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ARTHRITIS DEFORMANS.*

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The pathological position of true rheumatoid arthritis, or arthritis deformans, is perhaps not well defined. It is now generally believed that arthritis deformans is of an infectious nature. But the question is, what is the infective agent? Roscnow and others have thrown much light on the possible cause of this disease. Various germs have been found in the mouth, the tonsils, the gums, roots of teeth, etc., which are believed by many physicians to be the direct cause of arthritis deformans.

It is probably true that a chronic focus of infection in any region, may cause a systemic disease by hematogenous bacterial emboli, which infect and at the same time deprive the tissues of nourishment. But I maintain that an injury, unhygienic surroundings, worry, autointoxication, over-eating or under-eating, prolonged lactation, or too frequent child bearing—anything that will impair the vitality of a person, may result in arthritis deformans, tuberculosis, or some other form of disease.

The disease may be a remote sequel of an acute infectious disease, as nephritis or neuritis may follow acute rheumatism, scarlet fever, typhoid.

Here are some clinical points to be remem-

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bered: The disease is much more prevalent in women; the proportion is from five to ten women to one man affected—yet women are much more careful of their teeth! The majority of cases of arthritis deformans arise at those periods at which the metabolism of the tissues is undergoing marked change, such as puberty and the climacteric.

There seems to be a marked tendency in some families to this disease, or rather, to be more exact, a tendency to inflammation of joints and fibrous structures.

Acidemia and intestinal toxemia are frequent accompaniments of the disease. Full 95 per cent. of the patients suffer also from neuritis and obstinate constipation.

The joints which have been most actively engaged in the special work of the patient are usually the first to show signs of arthritic degeneration. Organs which are overworked exhibit the first signs of decay. The hands are often affected first; very seldom do they escape altogether. Nearly always there is bilateral involvement. The first and second metacarpophalangeal joints are first affected.

Charcot said that the lesions tend to advance up the limbs towards the trunk. But, although the wrists are generally affected after the fingers, and the ankles after the feet, seldom are the carpal and tarsal articulations affected first, the elbow often escapes, while the shoulder is involved. In the lower limbs the knees seldom escape; but in this form of the disease in comparatively young people, the hip joints are not often affected.

The temporo-maxillary articulation now and then becomes stiff and painful at an early stage. It is attacked by rheumatoid disease in about a quarter of the total number of cases. It is an important diagnostic sign; but there is at least one form of septic infection which may attack this joint.

The symmetry of rheumatoid arthritis has been long observed. Occasionally, however, there is a hemiplegic distribution, not only of the arthritic phenomena, but of all the companion symptoms.

At a later period of the disease, the articulations of the spine may become engaged. The cervical vertebrae are usually attacked first; a difficulty is felt in rotation and nutation; and

often the discomfort is referred to muscles rather than to bones. The dorsal and lumbar dorsal and lumbar vertebrae may be crippled next, so that nearly the whole length of the spine is transformed into a rigid column. The body is twisted and shortened, and moves in one piece; and in the recumbent posture the muscular difficulties are great; in a number of cases, however, the disease does not go beyond the cervical spine, or is checked by appropriate treatment. In this form of disease, the large preponderance of patients is among women.

The partial monarticular form of the rheumatoid arthritis is seen in the knee, hip, spinal column, and shoulder. The joints which are nearest the trunk suffer the most; and by old writers the term "hip-ache" was applied to all pains in that part, if the nature of the pain, whether due to sciatica or disease of the hip-joint, could not be nicely discriminated. But it was recognized that men suffer much more with this form of arthritis than women; and, as men are more exposed to injury and to the physical danger arising from occupation, so this form of rheumatoid arthritis came to wear a surgical aspect. A very slight injury may give the first impulse of senile change. But what a relative word senility is! Observe that the so-called monarticular lesion tends to spread out and become multiple, rheumatoid hips are apt to be followed by rheumatoid knees, and the infirmity in the elbow may follow infirmity in the shoulder. Very rarely are the hips crippled without engagement of the neighboring lumbar or even the lower dorsal vertebrae.

Atrophy of the muscle is often an early symptom and synchronous with the arthritic disease.

When one recalls all of these symptoms; that the disease is commonly symmetrical in its progress; that it is often associated with neuralgic and trophoneurotic symptoms, and the muscular wasting is out of proportion to the joint mischief; can one be blamed for seeing an analogy between arthritis deformans and the arthropathy originating in disease of the spinal cord?

Other behaviours of muscles in this disease must be noted. Cramp and intermittent spasm may last for hours at a time and cause acute pain. Tremor seizes a rheumatoid limb now and then, beginning nearly at the same time as the arthritic lesion. The spasm is of the type of paralysis agitans.

The changes in the circulation are frequent and important. Almost from the beginning there is an increased rapidity of the heart's action. The blood pressure is usually high, and there are more or less degenerative changes in the blood vessels. In many cases there are disturbances in the color of the skin.

In order that the treatment of arthritis deformans should have much chance of success, the following requirements must be complied with:

1. The treatment should be commenced as soon as possible after the appearance of the earliest signs of the disease.

2. It must be such as to maintain and increase the patient's strength, and all measures which have an opposite tendency should be avoided.

3. To be effectual it must be steadily continued over a period of months; or even, with short intermissions, for years.

The modes of treatment available may be grouped under the following heads:

1. Treatment by means of diet, hygiene, etc.
2. Climatic treatment.
3. Treatment by baths.
4. Internal administration of drugs.
5. Vaccine treatment.
6. External and local applications.

1. *Diet and Hygiene.* The question of diet is most important one in connection with the disease under consideration, for while a suitable diet lends material aid in coping with rheumatoid arthritis, needless and injudicious restrictions tend, on the other hand, to favor its progress and extension. This is a point on which it is impossible to lay too much stress, for the superficial resemblances between rheumatoid arthritis and gout have given rise to a widespread impression that a dietary suitable for a gouty patient is suitable for the rheumatoid patient, also. Thus the amount of animal food allowed is restricted or meat altogether forbidden. Experience shows that an entirely opposite course is that which affords the best chance of arrest, and that no greater mistake can be made than to treat the sufferer from rheumatoid arthritis as if he were an ordinary gouty subject. In the former disease the great need is to increase the patient's strength, or at least to maintain it as far as possible; and accordingly, no restriction should be imposed other than this,

that the food should be such as the patient can best digest and best assimilate. If dyspepsia be present, it should be treated by drugs, and by such an arrangement of diet as is best adapted to the patient's digestive powers, while retaining as far as possible its nutritious properties. Generally speaking, meat, far from being avoided, should be taken freely, together with a suitable quantity of vegetable food. There are exceptions, of course, to the above general rule. When the temperature is continuously high, or when, as is more often the case, attacks of fever of no long duration occur, the diet must, of course, be modified accordingly, but should be as nutritious as is possible under the circumstances. The object should be to give a generous diet which shall include the several main food factors, though it should be adapted to the conditions of the particular case. The acid fermentation in the stomach should be eliminated, and this is most readily accomplished by cutting off all saccharine and farinaceous articles of diet, and placing the patient for a few days on an abundance of red meat with plenty of hot water. Red meat produces ammonia, which neutralizes the sarolactic acid in the muscles; then milk to which some sodium bicarbonate and chalk or lime water have been added, junket and cream. Afterwards green vegetables and farinaceous food, except oatmeal; a fair amount of fat should be given, especially olive oil or cod-liver oil; at least 30 c.c. (1 ounce) of one of these oils should be given every night at bed time. Bacon gravy, fat bacon, cream, butter or margarine are valuable adjuncts, but beef and mutton fats had better be eschewed. The patient should take a liberal amount of table salt with meals. All acids and acid fruits, rhubarb, tomatoes, and asparagus should be avoided. When saccharoses are considered permissible, glucose and honey are better than cane sugar or jam, but perhaps a little marmalade may be occasionally allowed. When the patient is improving, grapes, bananas, nuts, stewed prunes and figs may be allowed; saccharin is better than sugar, more especially if the urine has become alkaline under treatment, and tends to deposit phosphates. Some patients can take eggs lightly boiled, scrambled or poached, but others can not. It is allowable to take milk puddings prepared without sugar, clear soups, macaroni and milk soups. This diet, so far from

being ill-nourishing, may actually fatten the patient, and I have known those who, using this for a time and then stopping, became worse from eating more robust fare.

Regarding drink, there is nothing better than pure water, especially hot water. Tea, as ordinarily made, is injurious by reason of the tannin it contains, but if it is treated with boiling milk, being infused in it for fifteen minutes, the tannin associated with the albumen of the milk forming a bland, non-astringent and harmless combination. To a half cupful of this infusion should be added as much boiling water. Sweeten to the taste with saccharin. Cocoa and coffee may also be used when prepared in this manner. Milk and soda water containing about 2 gm. (30 grains) of sodium bicarbonate to the litre (1 pint), barley water, and raisin tea. Avoid all sweet and acid drinks.

Atmospheric changes and exposures tend materially to increase the articular pains; and woolen underclothing adapted to the season of year should always be worn.

Exercise in moderation is to be commended; and even when the joints of the leg are affected a certain amount of walking should be allowed; but this should not be sufficient to cause lasting pain. Even when the patient can only get about in a wheeled chair, fresh air is desirable; for it must be our aim in this, as in other matters to keep the patient in as good a state of general health as possible.

2. *Climatic Treatment.* A warm, dry climate and a dry soil are the most suitable to rheumatoid patients, and the climate should be as equable as possible, as sudden fluctuations are apt to increase their pain. If the patient's home is in a damp neighborhood, removal to a drier locality should be urged; and well-to-do sufferers often obtain benefit from wintering in a warmer climate than this section of the country affords. In a choice of a place of sojourn, the importance of an equable warmth should be borne in mind. Such a change is especially adapted to cases in which the disease is not sufficiently advanced to cripple the patient; for when this stage is reached, the discomforts of a long journey may counterbalance the good to be expected from a change of climate.

3. *Treatment by Baths.* In almost all cases in which circumstances permit, the patient, in

whom the disease is not already so far advanced as to preclude hope of material advantage, should be advised to undergo a course of thermal treatment in addition to other measures; and it may be advisable that the course should be repeated annually for several years. Peat or mud baths, such as I am using at Mudlavia, are of undoubted value as hundreds of people who have been greatly benefited by our treatment, can testify. I am fully convinced that the mud baths are more beneficial than hot mineral water baths.

The electrical treatment of arthritis deformans has been carried out on two distinct lines, and in both ways with some success. The older mode was by direct application to the affected joints and their neighborhood, by using the continuous current, and so setting up vasomotor changes to modify the nutrition of the joints. The more recent treatment consists in general electrification by means of the electric bath, in the hope of changing the general state of nutrition of the whole system, and so, indirectly, of arresting the morbid process.

4. *Of Drugs.* I have found guaiacol carbonate, arsenic, iron, especially the syrup of iodide of iron, and in some cases, potassium iodide, to be of the most value. General tonic treatment is indicated of course. To correct the acid fermentation and improve the motor function of the stomach, sodoxilin, or the following: 2 gm. (30 grs.) of sodium bicarbonate, 0.6 gm. (10 grs.) of potassium bicarbonate and 1 gm. or 1.3 gm. (15 to 30 grs.) of aromatic chalk in a glass of milk, given about half an hour before meals, and a double dose at bed time; often smaller doses suffice. An excellent stomachic which may be needed in some cases, is calcium chloride, hydrochloric acid, and minute doses of tincture chloride of iron to be given after meals. A small cholagogue pill should be regularly administered to keep the bowels open; for this purpose an excellent mixture can be made with the sulphate, bicarbonate, and salicylate of sodium and licorice. The pancreas is also usually at fault, and to improve its action a capsule of holadin and bile salts may be given about two hours after meals. In these cases the thyroid gland usually is too active, and so, save in gouty or luetic cases, all preparations of iodine and thyroid should be avoided. Possibly suprarenal gland and pituitary extract might do good, as it has been shown that

these secretions tend to retain the lime in the system, whereas the thyroid increases its elimination, but it is preferable not to prescribe such powerful drugs when milder ones may suffice. It is imperative to get lime into the tissues and to lessen its elimination, but herein lies our difficulty, as no matter how much is administered by the mouth, it may be as rapidly excreted as it is absorbed, and so none may reach the tissues; but on the other hand the acidosis in the blood may be taking lime from the tissues as well as from the intestinal tract. In order to get the lime into the tissues there must be a liberal oral supply, and the blood must be kept very alkaline. For this it is well to prescribe freely chloride of sodium and potassium, sodium bicarbonate, chalk, lactate of lime, and calcium glycerophosphates. Iron is best administered in the form of underdone red meat and yolk of eggs. Guaiacol not only relieves pain but, if taken long enough and in sufficient quantities, is capable in some cases of arresting the course of the disease, decreasing the size of the joint and allowing increased movement. Both in the subacute and the chronic forms it is useful, its action being, probably, to arrest further infection from the intestinal tract, and after absorption, to combine with the bacterial toxins and thus assist the removal of the hypertrophied fibrous tissue. From .3 to .6 gm. (5 to 10 grs.) of the guaiacol carbonate should be given three times a day at first. This should be increased .06 or .12 gm. (1 to 2 grs.) each week until the dose reaches 1 to 1.3 g. (15 to 20 grs.). That this treatment be continued for at least a year is essential.

Arsenic given in small doses for three weeks out of every four is valuable. Arsenic stimulates gastric and intestinal digestion, thus increasing the appetite, while it heightens the activity of the tissues, favoring assimilation of food. Also it improves the condition of the blood by causing an increase of red marrow in the bone. I have used cacodylate of sodium hypodermically with good results.

The effects of medicinal treatment, as of other measures, are most marked in the cases in which the disease appears in early life and in its more acute form; but the patient should be instructed to persevere in any line of treatment, even if at first there be no obvious improvement, or indeed the reverse; for it is a common experience that

even in the cases in which the most satisfactory results are ultimately obtained, no effect is apparent for several months after treatment is commenced.

5. *Vaccine Treatment.* By means of auto-genous vaccines, in case a focus of infection can be found, should be practiced. It is not always possible to locate any focus, but the mouth, throat, ears, genito-urinary tract, should be carefully examined and any trouble in these localities relieved if possible. Rosenow has shown that the tiny blood vessel supplying the joint surfaces and the tendinous insertions of muscles become the seat of infectious emboli. The injury to the blood vessels by such bacterial emboli is followed by a thickening of the intima and thrombotic changes, the sum total of which leads to anemia and edema of the involved part, to be followed too often by degeneration and destruction. And, while theoretically, vaccine treatment is the rational, scientific method to pursue, we find, nevertheless, that vaccines alone fail in the majority of cases, in effecting much relief. I have found that the general treatment appropriate for a case of tuberculosis has proved the most satisfactory. In the main I agree with Billings, who says: "The treatment and management must comprise: (a) the removal of the cause; (b) improvement of the immunity by rest, personal hygiene, good food, pure air, and sunshine, rational calisthenics and physical culture, moral support and a cheerful environment. Autogenous vaccination may be used to improve the immunity still further."

If the source of infection is discovered, and if an autogenous vaccine can be made, it should be employed by all means. A. Bertram Soltan reports experiments with vaccines derived from staphylococcus. He claims that the employment of this vaccine has been followed by marked improvement. The dosage has been from 150,000 to 3,000,000 or 4,000,000. It has not always been easy to prevent excessive reaction, and at times a reversion to the earlier minute doses has been necessary after reaching the highest doses mentioned. The reaction has usually been an exacerbation of joint pains and swellings, together with slight rise of temperature. The injections are usually made at weekly intervals.

6. *Local Treatment.* In rheumatoid arthritis local treatment is of little avail; even when

it is applied for the relief of pain, the results are usually disappointing, and it has no influence upon the course of the malady. Continued dry massage, as distinguished from a short course of douche-massage, has the advantage of restoring the wasted muscles; but it is not of any material benefit to the affected joints, and if too long continued, sometimes seems to do harm rather than good.

CHARCOT'S JOINT.*

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The type of cases which is observed only occasionally often causes the keenest interest because of a possible error in making the diagnosis. So it is with Charcot's joints, for they are not coming in to us every year. The frequency in which this form of lesion initiates cases into observation is another interesting feature. Several cases of tabes have been diagnosed by the appearance of a spontaneous fracture bringing the attention to ataxia and other symptoms of locomotor. There has in the past been proportionately little said about these conditions; they merit more, as will be seen in this article.

Generally speaking, a Charcot's joint implies tabes. It is so in fully ninety or ninety-five per cent. The remaining five to ten per cent of cases appear in syringomyelia. When a case presents with joint symptoms there should be no trouble in making a diagnosis if you elicit one or more signs peculiar to the two foregoing diseases.

We must learn to anticipate nothing but must have in mind a picture of these pathological swellings in their various stages. Elbows or knees are most frequent. The joint is usually large, loose and filled with fluid. There is increased play of the bones. The joint is often much deformed and some limbs affected seem to be extended. Profuse growth or irregular enlargement of the soft tissues is the rule. They make you think of elephantiasis. In many cases the swelling goes beyond the joint, particularly noticed in the case to be mentioned. Portions of the joint may be destroyed; the heads of bone may be absorbed and infection getting in may make abscesses at these points. In case of the hip, ab-

sorption of bone causes displacements and shortening. Spontaneous fractures may occur before the swelling has caused much attention.

In the spine there is usually a rounded kyphosis in the lumbar region. Late cases usually show bony points easily felt under the skin. Since these are trophic disturbances anesthetics exist and as a rule there is little complaint of pain. Numbness, frost-bites without the patient's knowledge or other painless injuries point to these pathological conditions. A nice comparison can be made here for differential diagnosis of our five per cent of these joints. Here is a case I have seen lately:

Male, 27 years of age, looks strong, says he has never been sick, excepting the present trouble. He has now a very large left arm from elbow to tips of the fingers, which are stubs resultant from previous necrosis. Six years ago the left hand fingers were frost bitten; the ends of two came off, one finger was sore for a long time. Three years later another finger became inflamed and was removed. Five years ago the hand had begun to swell and has continued to increase gradually. This swelling receded at intervals, but each time the extremity remained larger. During the periods of the increases he says the right knee and shoulder were stiff. The wrist is now loose; the ends of the bone were softened and partly absorbed. Spontaneous dislocation occurred as shown by the fluoroscope. There was no pain and no sensation. Thermo anesthesia was very noticeable. Ataxia was present, also the greater toe drop on the right foot. Romberg sign absent. Argyll Robertson pupil was absent. Wassermann of the blood was negative; by oversight the spinal fluid was not examined. The patient's family and personal history were negative. The joint is characterized by thermal anesthesia which with the absence of Westphal's and Romberg's signs, makes the diagnosis of syringomyelia clear.

With this diagnosis is ushered in Morvan's disease or painless whitlow, which is considered by some authors as a variety of syringomyelia. In Morvan's variety the upper extremities alone are involved, the same as our case just described. There were repeated whitlow of the fingers; in each bone had come away, as shown in the x-ray picture. The unilateral nature of the lesions is only an element in diagnosis. Most of the authors now think Morvan's disease is a form of syringomyelia. Zambacco also thinks that they are an attenuated form of leprosy. The distinct presence of scars in this case and the location of the lesions in the upper extremities,

*Read at the forty-first annual meeting of the Southern Illinois Medical Association at Harrisburg, Nov. 4, 1915.

with the thermo-anesthesia distinguish it from the latter.

A history of pain for a long time with ataxia, Rhomberg's and Westphal's signs present, gastric or vesical crises make the diagnosis easy for tabes. As in the following case seen in our clinic lately.

Male, 50 years of age; history of syphilis 25 years ago, long continued headache, later he had Argyll Robertson pupil, loss of knee jerk (Westphal's symptom present). The tests showed spinal fluid, Wasserman positive, butyric acid positive, Lange's gold test slightly positive, Nonne's globulin test positive. The number of white cells per cubic millimeter was above normal. There were 38 in the highest count.

A few months ago symptoms of distress and enlargement appeared in the lumbar region with impaired movements. Then suddenly a prominence appeared at the third and at the fourth lumbar vertebrae. The third had slipped over the fourth, pressing on the cauda equinae, causing paresis of the abductor muscles. The symptoms remained unchanged for a few weeks, followed by slight improvement, when a brace was fitted on which enabled the patient to be up and walk about carefully. This case was ended by sudden death, as if from failure of respiration; it was thought to be from embolism.

In making a diagnosis, exclude inflammatory and tubercular joints, and remember that in cases of thermo-anesthesia or thermo-analgnesia your case may be syringomyelia; the paresthesia from syphilis may be confusing at first but not after a case is studied, as was seen in the one mentioned, with the thermo-anesthesia which permitted the frost-bite, apparently the first symptom of the patient.

THE ROENTGEN EXAMINATION OF THE APPENDIX.*

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The diagnosis of chronic appendicitis is still a matter of controversy; however, the Roentgen examination has to a certain extent eliminated some of the possible errors. While it is the object of the profession to make the work scientific, yet with all the methods now available, we are not able to make it absolute.

From the Roentgenological standpoint, little need be said of acute appendicitis excepting that one occasionally might be illumined in a left

sided appendicitis, several such cases having been reported. In such an instance an opaque enema carefully given during fluoroscopic examination will show if we have a case of situs inversus.

The bizarre, atypical symptoms in some cases lead to a faulty diagnosis and after the removal of the appendix it is found to be uninvolved and the condition of the patient remains as before. The appendix has frequently been removed when the real cause of trouble was a stone in the urinary tract, especially in the lower right ureter, tuberculous peritonitis, tubercular mesenteric glands, painful right inguinal hernia, pleurisy, etc. It is therefore evident that any supplementary knowledge should be welcomed.

The object of this paper is to place confirmatory data in our hands, which, with other clinical findings warrant a diagnosis of chronic appendicitis.

Holzknacht, Albers-Schonberg, Beclere, Jordan, Groedel, Riedel and other European roentgenologists did some early work on this subject; however, considerable credit must be given some of our American collaborators, notably Cole, Quimby, Imboden, George and Case, for appreciating the possibilities of this method of examination.

There are two methods of visualizing the appendix; the first is by injecting an opaque enema, the second by the ingestion of an opaque meal. The second is preferable because of the greater frequency with which the appendix can be demonstrated. In examining the patient the fluoroscopic method is the most satisfactory, and this should be done in both the vertical and horizontal positions.

By proper manipulation an otherwise hidden appendix can be shown, also movability and relationship to the surrounding structures noted. The plate method should also be used for it occasionally gives additional information. Sometimes stereoscopic plates are indicated whereby one can trace a retro-cecal appendix, or an appendix in close proximity to the cecum or ileum, which might otherwise be overlooked.

It is necessary that the lumen of the appendix be patent. The appendix may not be demonstrated if its lumen is obliterated or if adhesions or kinks are present near the proximal

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end; or if an acute attack exists, the infiltrated mucous membrane prevents the entrance of the opaque substance; also an enterolith or previously contained matter may prevent its filling.

The writer has had several cases in which the first examination failed to reveal the appendix, but a second examination disclosed its presence.

The two possible factors in filling the appendix are antiperistalsis in the ascending colon and sedimentation.

Groedel has recently asserted that every appendix which permits the entrance of an opaque meal is pathologic. However, the more rational assumption is that if the appendix empties itself at the same time that the cecum does, it should not be considered diseased, for Moro has cinematographically demonstrated peristalsis in the appendix of a dog similar to that which exists in the cecum. Cohen says that cecal contents normally enter the appendix; it should, however, be empty when the cecum is empty. He states it may fill and empty itself several times during the same opaque meal.

The time of examination is important, for the appendix commences to fill shortly after the cecum. This is usually after the sixth hour although there are cases that fill earlier; from this time on until the bowel is empty and often for several days afterwards the appendix remains visible. Howard A. Pirie has reported one case in which the shadow persisted for forty-three days.

Pathologists inform us that the evidences of previous appendiceal inflammations are peritoneal adhesions; obliteration of the whole or portions of its lumen; strictures of the lumen with more or less dilatation distal to it and lastly the presence of hard concretions which are retained by strictures or produce the same effects as strictures.

Concretions may occasionally be shown. The other factors are inferential from the following information. The visualized appendix with fluoroscopic manipulation will give us; first, the size, including the length and calibre; second, position and direction; third, drainage; fourth, mobility; fifth, kinks; sixth, the location of applied pressure to visceral topography. This latter point is quite important, for should pain be constantly elicited by pressing on the appendi-

ceal shadow, one is justified in suspecting its involvement, for seeing palpation is more valuable than palpation without seeing. This often throws light on cases in which anomalous symptoms have resulted from the appendix being situated in the pelvis, behind the cecum, or unusually high, when the symptoms may simulate gall stones or duodenal ulcer.

Fluoroscopically the presence of adhesions in connection with the appendix, terminal ileum and cecum, whether to each other or to the surrounding parts, can often be recognized, especially if they are extensive. If the cecum is in the pelvis it can often be drawn into the right iliac fossa. When this can not be done, it is impossible to determine whether adhesions are present, as the cecum and appendix are too deep to be palpated satisfactorily unless the colon is distended with air or the bladder is not emptied for ten or twelve hours. Sometimes the Trendelenberg position releases a mobile cecum so that the appendix is palpable and visible.

The appendix produces effects on remote organs. The stomach may be hypertonic so that it empties itself rapidly. This is much less frequently observed than with duodenal ulcer. More commonly a spasm occurs in the center of the stomach. Indeed, chronic appendicitis is, after gastric ulcer, the most frequent cause of spasmodic hour-glass constriction of the stomach. Sometimes pressure over the appendix will produce a spasm, in most cases epigastric discomfort was simultaneously produced. Barclay declares that appendicitis causes an impairment of the ileopyloric reflex producing appendix dyspepsia. Occasionally we have associated a delayed pylorospasm. Intestinal stasis is sometimes the result of adhesions following a chronically inflamed appendix.

Stasis of the cecum and ascending colon is often due to reflex inhibition resulting from chronic appendicitis. In such cases the cecum and ascending colon are often abnormally large and unusually mobile.

Enterospasm usually affecting the proximal half of the transverse colon is sometimes present.

When the appendix hangs over the brim of the pelvis or when the cecum as well as the appendix is situated in the pelvis, chronic appendicitis may produce dyschezia.

TETANUS, WITH REPORT OF CASES.*

J. NIESS,
CARM, ILL.

As recovery from tetanus after the fully developed symptoms have taken place is somewhat rare, I thought this paper with report of cases might be of interest.

Tetanus is a microbic disease invariably preceded by some injury and characterized by spasms of the voluntary muscles. Wound may have been so slight as to have attracted no attention. It is possible that the infection can occur through a mere abrasion of a mucous surface. The fact that the bacillus of tetanus is anaerobic explains the comparative frequency with which punctured and lacerated wounds are attacked.

Usual period of incubation is from three to six days although many cases have been known to manifest themselves many more days after an injury. In most cases symptoms first presenting are stiffness of jaw, nervousness, etc. In some cases there is just stiffness of neck and patient thinks he has taken a cold. Neck and jaw become as rigid as iron and fixation of jaw takes place, commonly called trismus. Act of deglutition is impaired. Muscles of back, legs, and abdomen are thrown into tonic spasms. Arm rarely suffers. Contraction of muscles of back become so powerful at times as to cause opisthotonus. May be drawn to side and cause pleurosthotonus. The characteristic condition in tetanus is one of widely diffused tonic spasm aggravated by peripheral irritation as sounds, light, shaking of bed, attempts at deglutition, draughts, contact of bed clothing, etc. Temperature may be normal, but is usually elevated. Insomnia is always present. The spasms of the diaphragm, glottis and of muscles of respiration may produce death and always produce great dyspnea. In greater per cent. of acute tetanus death occurs within five days, some as early as the second or third day. If patient lives a week his chance of recovery is good. In late years the death rate in acute tetanus has greatly diminished. Chronic tetanus appears later after a wound (two to four weeks), and symptoms are not so severe. Death rate not nearly as great and more amenable to treatment.

Acute tetanus rarely now confounded with

strychnine poisoning, hysteria, tetany, or with hydrophobia.

Within the last few years evidence as to the efficiency of antitetanic serum in cases of fully developed tetanus has been obtained by Permin and Park. In animal experiments, also from hospital statistics. From these findings it seemed very likely that if the serum were given so as to meet the pathogenesis of the disease the course of tetanus when developed could be much modified and greatly reduce the death rate. Conclusions based on relatively small number of cases are, of course, open to question, but the fact that a previous death rate of over eighty per cent. in all cases, and seventy per cent. in serum treated cases has been reduced in same class of patients to slightly over forty-five per cent. when serum was used must be given some weight in estimating the value of antitetanic serum as a curative agent. The chances that within a short time statistics of many cases in the war one will be available, makes one hesitate to attempt generalization on data insignificantly small in comparison.

The following cases are reported to add corroborative testimony to the efficiency of intramuscular and subcutaneous administration of antitetanic serum.

Case 1. On May 8, 1915, I was informed that a seven-year-old boy suffered from stiff neck, nervousness and fever. Nine days previously while playing in the yard, a very small nail had perforated his small toe. This wound was poulticed by the parents with flax seed and readily healed within a few days, and no further trouble was anticipated by his parents. I found the boy having convulsions every ten to fifteen minutes, absolutely rigid; abdominal muscles exceedingly tense and hard, temperature 103, pulse 100, respiration labored. Muscles of face were very much contracted, teeth barred and causing that peculiar grin which is so characteristic of tetanus. He had also had a severe chill same morning, was able to talk with great difficulty, could open mouth only enough to swallow quantities of liquid. Only evidence of wound was a slight scab on upper surface of toe, no larger than a pin head. On examination I peeled this away and a drop of pus exuded with small black fibre from hose that had been carried into perforation by nail. On trying to raise patient into a semirecumbent position it seemed like handling an inanimate object. He complained of severe pain in head and stated that it was drawing him together around the chest. As there was now no question as to the correctness of the diagnosis antitetanic serum was administered.

First injection consisting of 10,000 units given at 4 p. m. Six hours later 5,000 units more were given

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intramuscularly. Following morning pain was less severe, but moment patient was disturbed painful muscular contractions and general irritability occurred. That morning he received 10,000 units more. At 8 p. m. he was somewhat improved; temperature slightly lowered, 102; pulse, 100; muscular rigidity not so pronounced and only became manifest on slight disturbances.

The third day he was given 10,000 units at 10 a. m., subcutaneously. Toward night rigidity became less marked and patient rested some. Fourth and fifth day he received 5,000 units subcutaneously, daily, with further improvement. Sixth, seventh and eighth day he received 3,000 units daily, also given subcutaneously. Patient was now able with aid to assume a semirecumbent position in bed, still was evidence of muscular rigidity. Ninth day 3,000 units more were given subcutaneously. Muscular rigidity was still lessened; temperature 99, pulse 88, and labored respiration relieved. Eleven days after first injection and twenty days after injury rigidity of muscles had disappeared and temperature was normal, pulse 80. Thereafter patient's recovery was rapid, his appetite increasing and digestion improved. He still complained of soreness but this gradually disappeared. During course of treatment the patient received a total of 55,000 units of antitetanic serum administered intramuscularly and subcutaneously. Injections were made in back and along thigh. He suffered some discomfort at site of injection.

Internally chloral hydrate was given, also triple bromides. There was difficulty in administering of medicine on account of closure of mouth, but after a few injections of serum mouth could be opened sufficiently to permit the use of a hard rubber tube and by swallowing a small quantity of liquid at a time he did very well.

Epsom salts were administered daily to secure free elimination. Liquid nourishment was given either just before or after the administration of medicine, so as to disturb the patient as little as possible.

During first few days of serious symptoms urine was highly colored, but later became normal. During the period of treatment wound was dressed with carbolized gauze, and when dressings were changed the small wound was bathed with peroxide. In the treatment of this case the feature that seemed particularly worthy of note was the marked improvement in patient's condition following each administration of the antitetanic serum, resting slightly after the injection. He would awaken at the slightest noise, would go into convulsions from draughts striking him, or even the bed clothing coming in contact with him when raised would bring about convulsions. This case was sufficiently severe to indicate the great value of antitetanic serum.

Case 2. A colored man, aged 22 years, was struck on the head with a fire poker, February 28, 1915. He sustained slight superficial laceration of the scalp. Antiseptic to wound was used and it seemingly healed within a very few days. On January 8, the man com-

plained of nervousness, stiffness of jaw and neck, which was easily apparent as he described it and also as described by the attending physician with whom I saw this case. Temperature was 102 axillary, pulse 120. Slight convulsions were apparent and aggravated by draughts of air, noises, and external stimuli of any source. Immediate administration of 10,000 units of antitetanic serum subcutaneously. Six hours later he received 5,000 units more subcutaneously. Six hours after first injection change was very slight if any save that patient rested some easier. After the second injection spasms became easier, and tendency to rest, but still disturbed by spasms of short duration. January 9 patient was better and January 10 all spasms and rigidity of muscles had ceased. Temperature now was 99 and pulse 100. This case made a very speedy recovery after this. In connection with the case it is noted that the period of incubation was nine days, which classifies it as an acute case. Had reached the exhaustive stage where convulsions were present every fifteen to twenty minutes. Muscles of back had been drawn so hard that it had produced opisthotonus. Had difficulty in even taking liquid for forty-eight hours. Local treatment consisted of dressing of boric acid and alcohol pack. Free use of Epsom salts to assist elimination. Sedatives in form of bromides, chloral and morphin hypodermically.

Case 3. September 20, 1913, was called to see a boy aged nine years, who had had a lacerated wound of left hand of two weeks standing. Wound had been dressed by family with ordinary home remedies of turpentine, lard, etc. Boy complained of severe pain in head, nape of neck and chest. He was very nervous, easily frightened, and had spasms every five minutes. Temperature 104, pulse 130. Was constipated. Urine highly colored and eliminating poorly. Had the characteristic aspect of a man eighty years old. Jaws were set, teeth barred and could not open mouth to admit of any food save liquid which was given between the teeth. This boy received 10,000 units of the antitetanic serum intramuscularly at 7 p. m. There was no change six hours later. Then received 10,000 units more. This was followed six hours later by very slight improvement.

Second day convulsions were fewer and less painful, also resting slightly better. He received 5,000 units of serum second, third, fourth and fifth day, respectively. There was constant improvement in patient's condition. At end of sixth day temperature was 100, pulse 110, and respiration greatly relieved. Spasms were less frequent and he was now able to open mouth a little. Rested better following each injection of serum, which is very noteworthy. By end of ten days patient's temperature was 99, pulse 100. From then a speedy recovery ensued. During the course of serum treatment he was given free elimination with saline laxatives. Bromides, strophanthus and morphin were given, also chloral by rectal route which seemingly reacted very well to secure rest. Diet was liquid in form of milk, broths, liquid peptonoids, etc. Wound of hand was dressed with car-

bolized gauze, boric acid and alcohol. This healed very readily and at end of twenty days patient had completely recovered.

SUMMARY.

From these results obtained in three cases enumerated the only three cases that came under my observation within eight years of practice, it is evident that antitetanic serum will save lives in which tetanus has fully developed. The frequent delay in giving serum after symptoms have developed, complications of sepsis in lacerated wounds, and inadequate methods of use of serum has served to throw doubt hitherto on the curative value of antitetanic serum. If patient is seen early before fatal poisoning of system has taken place neutralizing of free toxins in blood and counteracting of poison already in system, aided by use of sedatives and other indicated medical and surgical procedures will save a good number of patients who would otherwise die. Many men have had exceedingly good results by administering the serum both intravenously and intraspinally, especially in those cases where poisoning of the nervous system was pronounced. In conclusion: It is better to prevent tetanus than to cure it. A prophylactic dose of 1,500 to 3,000 units should be given as soon as possible after the receipt of the traumatism suspected of causing tetanus. Wound should receive sterile plan of treatment even after giving of the serum and patient closely watched. But when tetanus is manifest the result from primary or immediate injection of a full dose of antitetanic serum are so effectual and satisfactory that it does not seem to me that we are justified longer in trying any other prophylactic treatment.

DISCUSSION.

Dr. Mitchell: I have treated a half dozen cases with serum and I have succeeded in curing four. Two years ago the wife of a German farmer stepped on a piece of glass and developed tetanus. Anti-tetanus serum, ten thousand units, the first injection, succeeded in controlling the convulsions for four hours. At the end of four hours we repeated the injection and continued to give the woman the serum for about nine or ten days. For the first four days she had convulsions every four hours unless she received an injection of the serum and after that the convulsions began to let up and she received two doses a day until she recovered.

I had another case of a patient shot with a wooden cartridge in the thigh. The wound was cleansed as

well as we could. At the end of nine days there was a rigidity in the jaws and in a day or two we had a fully developed tetanus and in that case we gave antitetanus serum. For the first twelve days we gave the injections every four hours. The father of the boy was a traveling man for a wholesale drug house. We gave that patient about \$450 worth of antitetanus serum. He finally recovered. I think we should give on first seeing the case about ten thousand units; with that dose, the convulsions will absolutely stop for four hours, but at the end of four hours the convulsions will begin again and if you leave that off eight hours the convulsions will occur every five minutes.

Another case I had at Sumner: A little fellow had stepped on something and developed tetanus and the family were very poor and couldn't furnish serum and they bought some \$40 or \$50 worth of serum and we used it and the convulsions were relieved. We had to leave it off a while and the convulsions returned again. We drew on the county again and the patient was very much better again. Then we were unable to get any more serum—either from Cairo or East St. Louis. The following morning the boy had convulsions and died.

Dr. Butner: I have had two cases and both proved fatal. I believe that my mistakes have been in that I have not given the toxin in sufficient quantity. In fact, I was rather pessimistic about the use of the serum. The case I recently lost was a little girl eight years old, infected in the heel by a splinter. I gave her three thousand units and in twelve hours from the first injection I could see that it was very near useless, but I gave her five thousand more units and she died about five or six hours later. I believe if I had had enough to give her she would have recovered.

Dr. Grinstead, Cairo: I am going to report a case a year ago that did not get any of the serum. He was a farmer kicked in the face by a mule. Later on he developed tetanus and was sent into the hospital. I ordered for him some chloral hydrate internally and morphin hypodermically. I started him with 20 grain dose of chloral and a $\frac{1}{4}$ grain dose of morphin. Then I raised the hypodermic dose to $\frac{1}{2}$ grain every four hours and the chloral to every four hours and alternated every two hours. I crept up with my doses according to the effect on the man. I thought I could control these convulsions and I did control them. He got well. I don't know how many cases of tetanus I have prevented by giving prophylactic doses of serum. Occasionally I have a patient who seems so much exposed to tetanus infection that I give him a good antiseptic or prophylactic dose. I never treat these cases lightly. I inject cocaine and push a probe directly to the bottom of the wound, using a pocket case probe and get the depth of the wound and then I push the director down. I take a small knife and run it on each side and open the wound wide enough and mop it out down at the bottom and put a gauze drain in, soaked in antiseptic.

I have been successful in cases treated that way. I am inclined to think that in a good many cases of accidental injury of persons who have been about horses or about stables where there are nails, that we had better give them a preventive dose. I have been greatly disappointed in the use of the serum and the class of patients I have have not the \$450 for the serum.

Dr. Empson, Harrisburg: I never had but three cases of tetanus in my life and cured the three with the serum. I think that the serum for tetanus will do the same thing that the antitoxin will do for diphtheria if we use it early enough and in large doses.

Dr. Hamilton, Mt. Vernon: I think that both of the doctors are right, but I am a little surprised in the discussion of this paper that nothing has been made mention of except the serum. Three years ago, in consultation, I saw an 18-year-old girl, who had developed, four days before, the typical symptoms of tetanus and a contraction of the muscles of the jaw. The girl couldn't take anything by mouth. She had fever. We didn't have any serum. We gave that girl a 5 per cent. solution of carbolic acid, an ordinary syringe full, which holds 2 cc. of the solution, every three hours. On the second afternoon the peculiar tightening of the muscles had diminished rapidly. On the third afternoon she relaxed entirely and she got well. That was a typical case of tetanus and the blood was full of the globe-shaped bacilli.

Dr. Skaggs, Harrisburg: We have had in the army some very different cases. We didn't have serum. Some of these cases were cured by filling them full of permanganate of potash and salts. I used H. M. C. in 0.5 grain dose. We couldn't tell then whether most of them died from the lack of serum or not. The percentage was about 80 per cent. deaths. That is all the medicine we had.

Dr. Ferrell: I have no more question about the serum than I have about the diphtheria antitoxin. If I understand the law a practitioner who fails or neglects or refuses to do the best known to the profession raises himself open to suit for malpractice. Suppose some man has a case of tetanus and don't use the serum. Suppose somebody who wanted some money was to sue him for malpractice, how many doctors here would be willing to go on the stand and swear that he hadn't done his duty? It is a good thing for doctors to remember these things.

Dr. Lingle, Cobden: Dr. Murphy of Chicago said several years ago that any man who did not use it in cases of barn-yard injuries, etc., was liable. I have had occasion to use it about six times since. The cases might not have developed. I certainly believe in the efficiency.

Dr. Butner: I have never given antitetanus serum through any other route than subcutaneous or intramuscularly. Authorities tell us that it requires far less when given intraspinally.

EARLY CONSIDERATION OF PARESIS.*

G. W. MORROW, M. D.

ANNA, ILL.

It is not the object of this paper to give a description of the classical symptoms of general paralysis, but rather to arouse suspicion of the presence of the disease at an early stage by directing attention to those symptoms often not marked, which appear early. These early symptoms are of special significance to the general practitioner for they are the first to see the disease in its incipency. The disease is prevalent both in city and rural districts and no village or hamlet is without its case of paresis at some time. 10.2 per cent. of total admissions to our state hospitals for the insane suffer from paresis. One male admission in each three between the ages of 35 and 55 years came as paretics and the possibility of its existence warrants a careful investigation in every man of this age presenting mental symptoms.

The onset is insidious in a majority of cases, and no exact time can be assigned to the appearance of the first symptoms of the disease and only approximate date of onset is possible by members of the patient's family. The onset is occasionally abrupt, may be ushered in with an epileptoid convulsion. Such cases in my experience run a rapid course and show early mental deterioration. The average duration of the disease at the time of admission to hospitals for the insane was found to be twenty weeks for males; fifty weeks for females. The average age of onset was 41 years in males and at a slightly later period in females.

Of a series of cases studied 76 per cent. occurred in white males as compared with 24 per cent. in females. The sex ratio is practically reversed in the colored, occurring in 60 per cent. females, as compared with 40 per cent. males.

Mental rather than physical symptoms predominate in the picture of early paresis, the higher association centers of judgment and reason, the most subtle and last acquired in the process of mental development are likewise the first to suffer from the deteriorating changes incident to the disease. These early symptoms are *protean* and variable in character, simulating those found in the course of many other forms

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of mental disorder. No single symptom stands alone as an index to paresis, but rather a combination of symptoms which amount to a change of personality, having as a basis defective judgment, together with certain physical and laboratory findings which must be relied upon for a correct interpretation of the disorder.

The first symptom in 29 per cent. of cases is restlessness with insomnia. These symptoms may precede further evidence of the true condition by many weeks or months and may easily be mistaken for many less serious and transitory conditions.

In 26 per cent. of cases, exaltation of mood is an early symptom—believing themselves possessed of superior business ability, or superhuman physical strength. The former business man of judgment, now busies himself with all sorts of unprofitable schemes, dissipates his means much needed by his family later; or the man of small stature and advanced years may enter training for the champion heavyweight boxer.

Depression of mood marks the beginning in 22 per cent. of cases, being more prevalent in the male and is an expression, in many cases, of the physical disorder of which the patient is conscious to a degree. These patients express many hypochondriacal ideas, simulating in this respect the depression found in other disorders.

Vague ideas of persecution associated with irritability mark the beginning of the mental disorders in 14 per cent. of cases.

Forgetfulness is an early symptom in most cases and is especially marked in 87 per cent. This involves more especially the sphere of memory for the recent past, and is often recognized by the patient himself—important engagements are forgotten, the names of acquaintances and dates cannot be recalled to his great embarrassment. Thus failing memory is largely responsible for the reduced working efficiency of the patient. Work which was once done with ease, now becomes a burden. Usual habits as to personal tidiness are forsaken, the patient goes unshaven and his general appearance is one of neglect.

When patients of paretic age present any of the above mentioned symptoms we are warranted in making a thorough physical examination as well as laboratory tests with paresis in view. In the sphere of early physical disorders we have the following to observe.

1. Pupillary changes are present early in the majority of paretics. A pupil irregular in outline, if unassociated with preinflammatory conditions and if attended by pupillary inequality, is very significant of early paresis. The pupillary changes to light may be increased, diminished or absent: if increased the pupillary excursion is small. The pupillary behavior to light changes may be quite different in the two eyes at any given time. Stationary pupils to light changes that maintain their reaction to distance are found in advanced cases.

2. Disturbances in deep reflexes, especially the patellar tendon reflexes which are in the majority of cases increased often to a knee clonus. The knee reflex may be unequal on the two sides and in a small per cent. of cases is diminished or absent. This is more particularly true of cases showing an early involvement of the cord, the so-called tabo-paresis.

3. Associated with changes in the pupillary and deep reflexes, clumsiness of movements occurs, the result of muscular incoordination early manifested by a difficulty in performing the finer movements incidental to their every day work, such as buttoning and unbuttoning the clothing, showing also irregularities of hand-writing.

4. Muscular tonus is early diminished, especially noticed in muscles of the face and is often unequally marked on the two sides, which abolishes the natural lines of facial intelligence giving a mask-like expression to the face.

5. Muscular tremors noticeable in the two axes of the protruded tongue and of the outspread fingers are often an early symptom which becomes more marked as the disease progresses. The trombone action of the tongue is quite characteristic in many cases of advanced paresis.

Speech changes are early symptoms in many cases, noticeable more often in conversation rather than in pronunciation of test words. Stammering of words and omission of syllables with repetition of others are some of the most pronounced defects.

These mental and physical findings should be corroborated, by laboratory tests upon the blood serum and spinal fluid. The Wassermann reaction is positive upon the blood serum in some 90 per cent. of cases and in 75 per cent. of the spinal fluid of paretics.

Thus far medical science is in its infancy in its efforts to bring about a cure in general paralysis.

Measures to be carried out by the general practitioner are removal of the patient from irritating surroundings with rest in bed and the application of hydrotherapeutic measures to allay excitement and produce sleep. Cases showing evidence of local irritation of the central nervous system may be benefited by a systematic administration of mercury.

In conclusion I would say that no single symptom is an index to paresis. Any mental change in a patient of paretic age should receive careful mental and physical examination with paresis in view.

PANAMA AS SEEN BY A PHYSICIAN.*

L. L. FIREBAUGH, M. D.

ROBINSON, ILL.

The passage from New Orleans to Colon, barring a mildly exciting rescue at sea, was without incident. There were the sea gulls with their graceful flight, the dolphins and the flying fish playing in the water trying to escape the ship, the monster they thought pursuing them, all without interest except to one green in sea travel. The line of demarcation between the Mississippi and the gulf water is as well marked as in a case of dry gangrene.

Quite a number of the one hundred passengers were sea-sick, but with me there was nothing doing. I was neither absent nor tardy at any table. The only land sighted on the way down was the west end of Cuba, and old Providence Island farther down. Early on the third morning out from New Orleans a wireless came from Cape San Antonio, Cuba, ordering the ship to go to the rescue of a steamer in distress, one hundred and fifty miles ahead and twenty-five miles off the course.

A little after seven p. m. I began to see what appeared to be rockets, and the lights of a steamer began to show. Within an hour we were stopped about one thousand feet away and had a boat on the way to the crippled ship. It proved to be a Spanish vessel from Barcelona, with two hundred passengers, and a crippled engine, anchored in about eight fathoms of water. It had been there forty-eight hours. None of the passengers could speak English, but there was no lack of enthusiasm on account of our pres-

ence. A boat with a small rope was sent over and a larger cable drawn back. In this way four large cables were stretched across. They weighed anchor and we started on the long hike to Colon. After towing the vessel twenty-four hours, on account of threatening weather, it was thought better to add another cable to those already attached, and a large one and one-fourth inch steel cable was added, without stopping, in the following manner: A cask was attached to a small cable and thrown overboard to float back to the other ship. The wash of the sea entangled it in the cable already in place. Its cable parted in trying to free it and it floated off.

A second cask was thrown overboard which was picked up by them, but they did not understand and threw the rope back into the sea. A third cask was more successful. They picked it up, removed the cask, attached a cable to the rope by means of which it was drawn across to the rescuing ship, attached to the steel cable and by means of a steam winch on the ship was drawn back and made fast. We were delayed just forty-eight hours by this incident.

The Why of the Isthmus. Early in the history of the world, as the dust and clouds incident to creation began to roll by, two flat-iron shaped pieces of land appeared close together, but without connection in the western hemisphere. Boats not being in use at the time, and being before the days of Darius Green, the Wright Brothers, wireless telegraphy, etc., it was evident that some connection was necessary so the Almighty in ridding up just swept the odds and ends left from creation together into a wind-row, or goose-necked shaped piece of land and called it the neck or Isthmus. By this arrangement Mrs. Grundy could just step across and have a pleasant season's gossip and at the same time censor her neighbors in a friendly way. This is the way the custom of calling first started among the ladies. The neck is thirty to seventy miles wide and long enough to reach. It is rough, uneven, topsy-turvy in contour with well marked vertebrae. Situated only nine degrees north of the equator there is perpetual summer and the abundant rainfall produces a vegetation unexcelled in denseness and grandeur.

The forests are decked here and there with flowering trees magnificent to behold, and though the larger trees are stately within them-

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selves, they lacked the moss of the southern states and the shade-producing power of the northern forests. The country is practically unexplored. Insect and animal life is rife—there are birds of magnificent plumage as well as birds of beautiful song. Wild hogs abound and the cat and monkey tribes are not wanting. Though there are turtles, alligators and serpents large enough to satisfy the most fastidious, and compels me to state that the most dangerous animal there belongs to the midge family—of which more later.

In the fullness of time Balboa viewed the south sea from Darien, at the same time his hungry eye caught the gleam of gold from both north and south and Spanish avarice and cupidity did the rest. The splendid civilization of Peru and Mexico went down and the thriving city of old Panama sprang up, only to fall before English pirates one hundred and fifty years later. Now only an old stone bridge and a few crumbling walls remain as grim reminders of the grandeur that was.

The Why of the Canal. The dream of the canal is four hundred years old. In 1513, Balboa is said to have carried two ships, piecemeal, across the Isthmus, and in the midst of the task I imagine I hear the grim old Spaniard say, "Manana! Sometime we will make a ditch across here." Its feasibility had been admitted by engineers generally, until Philip II of Spain, gave it a quietus for a time by appealing to the priesthood, who said: "What God hath joined together let no man put asunder." Whereupon he decreed death to any man undertaking to dig a canal. Then there was more time than commerce, and there really was no demand for a canal. But as the country developed and steam navigation and railroads came, commerce developed and conditions were reversed. The demand grew apace and dirt was really thrown at several points. The first serious attempt was begun by the French in 1881. They acquired the right, built and equipped fine hospitals and really did a great deal of work. They spent millions on fine machinery only to let it rust in the jungle. They forgot the old adage an ounce of prevention is worth a pound of cure.

After nine years they succumbed to graft, yellow and malarial fever and went home. Went home did I say? Not all—twenty-two thousand

of the best brawn and young blood of France await the call of Gabriel on Monkey Hill—now Mount Hope. The Spanish-American war made the digging of the canal probable. The finding of a commission of United States army surgeons in Cuba made its construction possible, by demonstrating the mode of conveying the yellow fever germs to the patient. When the people of the United States expected a powerful Spanish fleet to be knocking at the front door of the Republic, while the Oregon took six long weeks to sail around Cape Horn, the building of the canal became the sincere desire of the American heart. Now a sincere desire is a prayer, and the American people are righteous, and the prayer of the righteous avails, and as faith is always present with honest prayer, mountains move.

Is there a doubter present? Had he been with me at Culebra cut and seen the granite yield before the drill and dynamite, and a great landslide melt away before a corps of steam shovels, his doubts would be removed. The present landslide will be removed too, in a short time.

The canal zone is ten miles wide and extends from the bay of Colon to the bay of Panama. In 1904 it was a seething jungle, reeking with pestilence, where danger lurked in every shadow and death met the victim more than half way. The home of yellow fever and malaria, smallpox and dysentery were common, and typhoid fever and bubonic plague were not strangers. The Panama Railroad was there and had been since 1855. Its building was a fight for life from the start. It is said that the laying of each tie cost a life. It consisted of the rolling stock, two strings of steel from Colon to Panama, with now and then a switch for a station and a jungle crowding the ties on either side. The biggest things about it were the prices for passenger tickets and the bills for freight.

There are only two cities of any note, and while they are both in the zone, they are not of it. Colon has fifteen thousand people and if Ham did not settle there his counterpart did, and he ought to have his alibi ready. Panama has forty thousand people. There is a very small percentage of white—the rest range in color from a smoked ham or a new saddle to the aloe of spades. There are no street railways, few automobiles, numerous jitney buggies, with a very small Indian pony—sometimes two, and a

bell attachment, a dusky driver and an elastic fee bill. It has two banks, one lottery, one sea wall and old fort combined, now used as a prison, three parks, decked with the most beautiful royal palms, one band to furnish music therein; numerous old churches, several bull fights and many cock fights, in which latter the inhabitants show a zeal worthy of a better cause. Their raiment varies from a smile to full dress, and a mantle of indolence appears to envelop all.

Nearly everything from a letter to a steamer trunk or a small freight car is carried on the head. Spanish is the language of both cities. The streets are narrow and until 1904 were without sewerage. They had only the most primitive water supply, depending on open barrels, tanks, ponds, etc., where the stegomyia and anopheles waxed numerous. The United States has furnished a fine water system to both cities as well as paving and surfacing all streets. It has done the same through the length of the canal.

The hospital system consisting of the Colon hospital at the north end with its five hundred beds and the Ancon hospital at the south end with fifteen hundred beds and the twenty odd subsidiary hospitals with equipment equal to anything in the world; with the ambulanee cars on a railroad, two trains each way a day, and a medical and surgical personnel that cannot be surpassed, the hospital is amply sufficient.

Through the efforts of Colonel Gorgas, the family physician of the zone, health is as good there as in Illinois or anywhere else. The canal is mildly and irregularly S-shaped; it follows the line of least resistance consistent with shortness. It is fifty-one miles long from deep water to deep water, runs from northwest to southeast, the Pacific being twenty miles east of the Atlantic end. Its minimum depth is forty-one feet, its minimum width three hundred feet, its average is six hundred and forty-nine feet. Its summit elevation of eighty-five feet is reached by a flight of three locks at Gatun, seven miles from the Atlantic. The locks are twelve in number, six double locks (each compartment one hundred ten feet wide by one thousand feet long).

There are forty-six gates composed of ninety-two leaves which open back with the walls; the gates weigh from three hundred to six hundred

tons; are seven feet thick and are arranged to make compartments fit ships of any size. Safety appliances are amply sufficient. In addition to the gates large chains are arranged in each lock which drop to the bottom when not in use, but take their places in front of a vessel should it become unruly. All of the gates and all of the machinery, the electrical engines that pull the ships through the locks and the chains that restrain them will be moved by electricity manufactured by the water power near the spillway at the Gatun. Gatun and locks and all light houses and beacon lights along the canal are illuminated by electricity from the same point. At Gatun is located the great dam which harnesses the Chagres river which furnishes water for the canal. The dam is one and one-half miles long, one-half mile thick at the base, one hundred feet thick at the top, which is one hundred and fifteen feet above sea level.

Here also is Gatun lake, one hundred and sixty-four miles in extent, fed by the Chagres river, and the spillway, a part of the dam, a sort of a safety valve to take care of any excess from torrential rains or from any cause. The drowning forests are seen here and I might say the drowning animals also; they were driven to the knobs as the water rose to the normal depth of nearly ninety feet and as the hills were submerged they met their doom. The old line of the Panama Railroad and old Gatun were both submerged.

From the Gatun locks the ship sails on through Gatun lake, Culebr acut, etc., to Pedro Miguel lock, where it drops thirty feet to the fifty-five foot level, sails one and one-half miles over Miraflores lake to Miraflores lock where it drops fifty-five feet in two steps to the Pacific ocean level and sails eight miles to the sea. Vessels sail by their own power except through the locks through which they are taken by means of electrical engines. It takes eleven or twelve hours for a ship to make the entire trip through the canal. The first ship passed through in the spring of 1914.

Here we have the greatest engineering feat of modern times begun under the most unfavorable circumstances in one of the most pestiferous regions of earth, completed ahead of time. How was it done? Efficiency is the answer. The heart of the management as well as the heart of

every employe was in it. The building of the canal is a great thing and every American ought to be proud of it. But the lesson in preventive medicine taught by Colonel, now General Gorgas, in cleaning up Colon and Panama and the line of the canal, rendering it almost as healthy as Illinois, is much greater. How was it done? Schools of sanitation were started along the canal and every employe was compelled to attend.

It is known that *stegomyia* conveys yellow fever by biting people about twelve days after having bitten a yellow fever patient during the first three days of his sickness. It is known that the *anopheles* conveys malaria about nine days after having bitten a patient with malaria, and it is known that both provoke profanity whether they have bitten any one else or not. Wigglers are only young mosquitoes and develop into old ones and old ones are very zealous in the production of the young. The life of a wiggler in the water is twelve days, during which time he must come to the surface every few minutes to breathe. The life of a mosquito is from sixty to ninety days and his ability to fly is limited to one hundred yards or a little more.

Advantage was taken of all these points in sanitation. Grass and jungle were cut short for two hundred yards around all points where laborers were employed. Ponds and marshes were filled or drained where possible and a corps of kerosene sprayers were kept spraying all the waters in the neighborhood. Drip cans of larvicide were kept at the head of streams so that when the wigglers came up to breathe they got a dose, and subsequent proceedings interested them no more. All houses were screened and all patients sick from any cause were immediately placed behind screens. All houses in Panama in Colon and along the canal zone were fumigated in one month. Streets of both cities were paved, sewered and a good water system established in both as well as along the canal, thereby doing away with the old barrels in which they domesticated the *stegomyia*. Garbage furnaces were established, thereby doing away with flies as typhoid carriers. Rats were relentlessly pursued and exterminated thereby doing away with the plague. The remedy for smallpox was easy—vaccination. Yellow fever patients die or get well quickly, ceasing after the third day to be carriers, but

with malaria it is quite another thing. Seventy per cent. of the people are afflicted with it and many of them are carriers as long as they stay in the zone.

Quinine, like salvation, was free, only a great deal more tangible. It was kept on all the tables in three or four forms, in all the eating houses in the zone, the same as sugar or salt, and each employe was advised (not compelled) to take five grains once a day as a prophylactic. Dispensers were sent around among the men every day to urge its use in the same manner. In this way it is said that fifteen thousand six hundred pounds of quinine was issued to employes in six years from 1906 to 1912.

Homesickness is a condition that always has to be reckoned with when people are shifted from one part of the country to another or from one country to another. It varies in intensity from a mere longing for the old surroundings to a mania. There may be loss of appetite, insomnia or a depression too deep to be measured. The croak of a raven, borne in on memory from the old home, is sweeter music by far than the cooing of a dove or the song of a catbird in the present situation. Many a young soldier has gone to his grave with his longing eyes fixed upon the old home, when a furlough of a month or six weeks would have restored him to health and usefulness. The treatment is preventive—a trip home when at all grave. *Busyness* is happiness and that is the key to the situation. And that is the way the Government has met the condition in the canal zone. Reading rooms, chess clubs, billiard halls, gymnasiums and bowling alleys have been established by the commission in the more important villages along the canal thus giving the men places to go for amusement.

The club houses are under the trained amusement experts of the Y. M. C. A. and are said to have materially limited the consumption of bad whiskey, and worse beer, beside keeping the men contented. With the women it is more difficult: the men had their strenuous labor during the day to occupy their minds to make them forget their troubles if they had any. Being only temporary residents, household duties were lighter and women having nothing of the gainful occupation of men, had more time to brood over their trouble real or imaginary, and were all the more liable to homesickness. The commission met this situa-

tion also by organizing women's clubs in all the villages. There were musical clubs, card clubs, sewing circles, etc., not to mention the fine dancing halls in the Tivoli Hotel at Ancon—thus giving them amusement and alleviating the situation materially.

The entire cost of the canal was four hundred million dollars. The cost of sanitation, including the cleaning up and paving and the water supply of Panama and the water system of the canal zone, was twenty million dollars—one-twentieth of the entire amount. Three and a half million of the latter sum will be paid back to the United States in fees for water, by the two cities in the next fifty years when the water system will belong to them.

THE LABORATORY SIGNIFICANCE.*

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1. GASTRIC CONTENTS.

In order to make an examination of gastric contents, a special test meal is administered and withdrawn at the height of digestion.

The mostly used meals are Ewald test breakfast, consisting of an ordinary slice of toasted wheat bread not buttered and about one pint of weak tea, without sugar, and the breakfast test of Boas. This consists of a plateful of oatmeal soup, prepared by boiling down to 500 c. c., one liter of water to which a tablespoonful of rolled oats has been added. A little salt may be used if desired, but nothing more. This test meal was devised by Boas in order to guard against the introduction from without of lactic acid, which is present in all kinds of bread. The meal is employed in cases of suspected cancer of the stomach in which quantitative estimation of lactic acid is to be made; the stomach being washed out completely the night before. The contents are removed exactly after one hour from time of ingestion. The patient having been told to incline the head forward and open his mouth as in the act of swallowing food, the catheter is then passed to the posterior wall of the pharynx and gradually pushed down until a slight resistance is felt, indicating it has reached the floor of the stomach.

The most adaptable stomach tube used by the writer is the Ewald stomach evacuator, consisting of a Nélaton catheter, about 75 cm. in length, provided with a glass sight tube at the aspirating end and a bulb by which means the gastric contents are withdrawn from the stomach.

The technique of introduction should be very simple; the exhibition of complicated arrangements should be strictly avoided, as this only adds to the excitement of a nervous patient. The patient's clothing should be protected from being soiled by some means, as it often happens that some of the material or saliva may be vomited along the sides of the tube.

The bulb is now compressed, attached to the tube, the contents aspirated, and the tube withdrawn.

The amount of the contents varies from 1-60 c. c. If an abnormally large amount is obtained, it is due to so-called hyper-secretion.

Chemical Examination.—The contents are measured, and in case the amount is small, accurately diluted with distilled water, the factor of dilution being used in quantitative figuring of findings.

Next the color, odor and macroscopic appearance are observed and noted down.

The diluted gastric contents are then filtered, or (better and quicker) centrifuged, until the supernatant liquid is clear. In the latter method the clear juice is carefully decanted into a scrupulously clean, dry vessel and the various tests made.

Total Acidity.—10 c. c. of juice diluted with a little distilled water, are titrated with N/10 NaOH solution, using a drop of phenolphthalein solution as indicator until a permanent pink appears. The degree of acidity is then expressed in terms of the number of ccs N/10 solution which would be required to neutralize 100 c. c. of gastric juice.

Example: 10 c. c. of gastric juice required the addition of 8.5 c. c. of N/10 NaOH solution. For 100 c. c., 8.5x10; 85 c. c. would thus be necessary. The total acidity is hence said to be 85 or ⁸⁵/40.

Free Hydrochloric Acid.—10 c. c. of the juice are titrated with N/10 NaOH solution, using a drop of a watery solution of methyl orange as indicator, until a permanent yellow appears. The amount of free HCL is calculated by multi-

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plying of the c. e. of N/10 NaOH solution used for neutralizing, by 0.00365, which result gives the free HCL by weight contained in 10 c. e.

Combined HCL.—10 c. e. of gastric juice are titrated with N/10 NaOH solution, as before, using watery solution of alizarin as indicator, until permanent purple appears. The amount deducted from the amount of total acidity, gives the amount of combined HCL.

Acid Salls.—These are estimated by addition of the amounts of free and combined HCL and subtracted from total acidity.

The amount of HCL in gastric juice is clinically very important and it is necessary to distinguish between the different phases as: Euechlorhydria (normal amount of HCL), is absent in chronic gastritis but is present in gastric ulcer.

Hypochlorhydria.—(Decreased amount of free HCL.). Is present in diseases where secretory elements have been damaged or as the result of general disease or of local disease, as in chronic and subacute gastritis, some cases of ulcer of the stomach, or the duodenum, incipient carcinoma, and in certain cases of dilatation and atony, or withdrawal of chlorides from the food.

Anachlorhydria.—(Absence of free HCL.) Was not long ago thought to be pathognomonic of carcinoma which view was abandoned, as it was shown that carcinoma occurred in many cases where not only HCL was present, but present in excessive amounts. It was also shown that anachlorhydria exists in almost all cases of chronic gastritis, pernicious anemia and very commonly in neurasthenics, hysterics and in cases of febrile infections.

Hyperchlorhydria.—(Excess of free HCL.) This phenomenon is very common in neurotic patients, where it may alternate with hypo- and anachlorhydria. The same is seen even normally during menstruation. Associated with a continuous hypersecretion of gastric juice, it constitutes a neurosis known as hypersecretio acida et continua (gastrosucorrhea acida).

In a majority of gastric ulcers and carcinomas which have started from gastric ulcer we also meet with hyperchlorhydria.

Very often hyperchlorhydria is found in passive congestion of the stomach, in certain types of mental disease, in early stages of chronic gastritis, during attacks of migraine, etc.

Lactic Acid.—Qualitative tests for lactic acid are many. The quickest, simplest and mostly employed tests are:

Uffelmann's Test.—5-10 c. e. of the clear gastric juice are extracted by shaking in a separatory funnel with neutral sulphuric ether (about 50-100 c. e. are required); the ethereal extract is evaporated. The residue is diluted by 5-10 c. e. of distilled water and tested as follows: 3 drops of saturated aqueous solution of ferric chloride are mixed with 3 drops of a concentrated solution of pure phenol, diluted with distilled water, until an amethyst color is obtained. To this solution a portion of the ethereal extract is added, when in presence of lactic acid a canary yellow color is obtained. This test, although commonly used, is not very reliable, especially when Ewald test meal has been applied. The better and more accurate test is a Simon's modification of Kelling's method, which is performed in the following manner:

To a test-tubeful of water a drop of solution of sesquichloride of iron is added so as to barely color it. One-half is poured into another test tube which serves as control. A small portion of clear gastric juice is added to the other specimen, when the presence of lactic acid is manifested by a distinct yellow developed at once and which appears more marked if compared with the nearly colorless control.

Quantitative Test for Lactic Acid.—The writer employs the Boas' rapid method, which requires the following technique: 10 c. e. of clear gastric juice are treated with a few drops of diluted sulphuric acid, and the albumin removed by heat.

The filtrate is evaporated on water bath to a syrupy consistency, water added to the original amount and this again evaporated to a small volume, fatty acids being thereby removed. The lactic acid remaining is now extracted with neutral ether (200 c. e. required for 10 c. e. juice), the ether is then evaporated, the residue taken up with water and titrated with N/10 solution of sodium hydrate, using phenolphthalein as indicator.

Percentage of lactic acid is calculated by multiplying amount of c. e. used for neutralizing, by 0.009 and result by 100.

Butyric Acid.—This can usually be recognized by its odor, which is that of rancid butter.

If a more definite test is desired, 10 c. e. of

the clear juice are extracted with ether same as for lactic acid. Residue after evaporation is taken up with distilled water, a little lump of calcium chloride added. Butyric acid will separate out in the form of oil droplets, which can be readily recognized by their odor.

Test for Acetic Acid.—10 c. c. of the clear juice are extracted with ether, as before. The residue after evaporation is dissolved in a little water, neutralized with N/10 NaOH solution, sodium acetate being formed. If to this a drop of a very dilute solution of ferric chloride is added, a dark red color results.

Quantitatively, fatty acids might be estimated by the very simple method of Cahn-Mehring, modified by McNaught. The total acidity is determined in 10 c. c. of clear gastric juice. Another 10 c. c. is evaporated to a syrupy consistency, diluted with water, and acidity found similarly. The difference between the two results will indicate the amount of fatty acids present.

The amount of ferments in gastric juice can be estimated only in an indirect manner, i. e., by studying the rapidity with which a given amount of albuminous material will digest.

The most practical and for practical purposes, satisfactory test is found in application of Hamerschlag's method, viz:

Two Esbach albuminometers are employed.

Tube A is filled to the mark U with a mixture of 10 c. c. of a 1 per cent. solution of egg albumin (the white of one egg diluted 13 times with distilled water) in 0.4 per cent. of HCL and 5 c. c. of the clear gastric juice. Tube B is treated similarly, the juice being replaced by distilled water. After the tubes have been kept in incubator for 1 hour, Esbach solution is added to each tube to the mark R, set aside for 24 hours (or centrifuged after thorough mixing). The difference between the two readings of albumin indicates the albumin digested; this raised to the square, gives the corresponding relative amount of pepsin.

Starchy or carbohydrate digestion test is very simple, it being based upon the reaction with Lugol solution. Starch might be recognized by the fact that it strikes a blue color, while the same solution gives a violet or mahogany brown with erythrodextrin.

Occult Blood.—This is detected by the ben-zidin test, which is very sensitive.

For this purpose about 2 c.c. of unfiltered gastric contents are mixed with equal portions of an alcoholic solution of benzidin, hydrogen peroxide, and a few drops of glacial acetic acid. Green or blue color appears, when blood is present.

Microscopical Examination of the Gastric Contents.—Aside from fragments of undigested food, the following is found frequently in gastric contents:

Mucus, epithelial cells, goblet cells and sometimes pieces of tumors. Latter should be washed, hardened at once and sectioned for purpose of diagnosis. Among numerous micro-organisms the most important is the Boas Oppler Bacillus. It is generally present in carcinoma, at time when lactic acid can be demonstrated in large amounts. It being an active lactic acid producer its presence might hence be regarded as an indicator of advanced lactic acid fermentation. It is almost always absent in non-malignant disease of the stomach. Lately it has been compared with *Bacillus Bulgaricus* and found that it is closely related to the former and probably that it is one and the same micro-organism.

Bac. tuberculosis might be found in cases of phthisis, where sputum is swallowed. Other micro-organisms and protozoa are of not much importance.

INDICANURIA.

Among the chromogens appearing in urine, the most important is indican. It is a derivative of indol, being sodium or potassium salt of indoxyl sulphate.

Formerly it was thought that indican could be formed within the tissues of the body in the absence of putrefactive organisms.

Further researches, however, have shown that the production of the same is always in the large intestine.

The normal amount of indican eliminated in the urine cannot be accurately estimated as it varies with the character of diet.

Animal food increases its elimination and milk diet decreases the same. In man the greatest reduction might be effected by ingesting kumys, or kefir, both products of *Bacillus Bulgaricus* and like micro-organisms.

2. INDICANURIA.

Increased amount of indican is observed in the following pathological conditions:

Intestinal putrefaction, with a few exceptions in cancer of the stomach, ileus, in albuminous putrefaction as in cases of empyema, putrid bronchitis, gangrene of the lung, etc.

In simple, uncomplicated constipation increased indicanuria is not seen.

The tests for indican in urine are various, but all center around the decomposition of the same by hydrochloric acid, when it is split into sulphuric acid and indoxyl; upon addition of an oxidizing agent, indigo blue results.

A very practical qualitative test is the following: To a few c.c. of urine, an equal amount of Obermeyer's reagent (consisting of 2 per mille solution of ferric chloride in concentrated HCL), is added.

This mixture is shaken with a few drops of chloroform, which takes up the indigo blue that is formed. The resulting extract is normally sky blue or colorless; a darker color indicates an increased amount of indican. If the urine is very dark, it is cleared by means of a solution of subacetate of lead, filtered and tested as stated.

PRACTICE AMONG THE ESKIMO.*

BRUCE H. BROWN, M. D.

IROQUOIS, ILL.

Gentlemen, in preparing this paper, I have drawn mostly from memory; having been in government employ, all my case records and reports were the property of the government.

Practice among the Eskimo is the subject of my paper, but I shall also speak of the customs, especially those akin to disease, and which will tend to give you some insight into the Eskimo character.

To render young children strong and healthy, these savages feed them the flesh of young pups or dog's excrements mixed with their food, which sometimes causes their death. I have in mind a case of epithelioma of the lip (one of two cases of cancer seen in five years), which I had treated, of course, unsuccessfully. The native becoming discouraged drank, either on the advice of the

medicine man or some ignorant white, a mixture of dog urine and gunpowder. It killed him.

Parents who have lost several children, give the surviving ones to some childless couple, who by adopting them, save them from the death to which they are doomed in their own family. This plan may work well in cases in which the parents are negligent, or too stupid to take proper care of the children, or tubercular; provided the adoptive ones are not the same. But experience shows that the mortality of adopted children is not noticeably less than that of others.

To cure permanently a crop of successive boils, to which these natives are not unfrequently subject, they have two methods, of singular efficacy. The core being carefully extracted is placed in the barrel of a gun and fired off with the load, or else it is swallowed by the patient. The second method might be considered an homoeopathic treatment, while the first is decidedly allopathic.

Both, however, in the Eskimo view proceed from the same idea of utterly destroying the offensive germ. In the second case the native theory is that organic matter is thoroughly destroyed by the process of digestion. Another habit fortunately obsolete is that of wives carefully gathering in cups or other receptacles the expectorations of their consumptive husbands, blood as well as pus, and swallowing it. To burn anything excreted from the body would be to them be running the risk of terrible disaster. The puberty customs exclusively concern the woman. They appear to have no notion of age of puberty in males, and though they sometimes impose a new name to a male child about his twelfth year; it seems to have no reference to any organic development. In the case of a girl, the renaming generally takes place when she reaches the age of puberty. They have the idea that women at this time are particularly receptive towards all external influences; hence the principal of assimilation by contact is brought to bear, and all available objects that are possessed of qualities desirable for her are sought for and put in close proximity to her. They also believe that the discharge contains the very essence of femininity, hence the woman must avoid all contact with man; especially young men, as this would render these young men womanish and unmanly.

Of course, no young man who has a spark of

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ambition would willingly expose himself to blight thus the rest of his earthly career, nor would a young woman bring this misfortune upon him and so the puberty rules are rather scrupulously observed.

I have never heard of a case of legal impurity contracted by a woman in this condition.

Making due allowance for honorable exceptions it must be said that it is a notion among these people, and one that does no credit to their morality, that menstruation is a consequence of previous sexual intercourse. Thus in certain localities girls generally with the full consent of parents or guardians have intercourse with a man preferably married to have the first catamenia.

In other places, notably on the Yukon, it goes otherwise, and when the phenomenon first occurs to one she receives a severe scolding as though guilty of misbehavior.

If it is in winter a small space is curtained off from the remaining space by a piece of canvas or blanket; if in summer a tent is erected for her outside. This is the retreat chamber in which the young woman eats, sleeps, works and muses. She is conducted to it by the oldest woman in the camp, who also administers to her a mixture of water and oil extracted by boiling from salmon heads which have undergone partial decomposition under water and some dried slices of white fish. The grease is put in so she will always have grease in her mouth, which is equivalent to saying that she may always have food in abundance. Solemnly presented the beverage is swallowed with equal solemnity. Then follows a sort of lecture in which the old woman presents herself as a pattern of all womanly virtues and inquires from the girl if she will conduct herself in the same praiseworthy manner. She naturally answers that she will. During the month of confinement, she cannot speak to any man; not even see his face, much less touch his clothes or any object belonging to him. No evil would ensue for her but the misfortune would be all for him. When she has to leave the place for the necessities of nature, she must do so unseen. She generally goes out late at night after the others are in bed or early in the morning before they are awake. She wears a long parkie with a long hood. This hood is called the flabby cap, which is pulled over the eyes before leaving and kept

down as long as she remains out. She is not allowed to undress but sleeps with all her clothes on, even her mittens. In these as well as her stockings she has some decayed birch wood ground to a fine powder. This that her hands and feet may remain dry throughout her lifetime.

The Eskimo value this circumstance because of the frequent occasions on which they are exposed, and which in extremely cold weather sometimes means freezing them. In her stockings she also wears next to the skin the horny soles cut off from the porcupine's feet that during after life her footwear may never wear out.

Around her waist she wears a cord tying the drawers on which are strung the heads of femurs of the porcupine. These are sawed off from the bone and perforated for the purpose and a supply of them are always on hand. Besides this she wears another porcupine cord of a peculiar nature. When a porcupine is killed and its bowels are taken out they contain the feces in small round balls distributed along the intestine and about three or four inches apart. The guts and contents are put to dry in this condition and when a girl "goes apart" one of these strings is given to her. She sews it inside of a belt which she wears around her waist during the period of sequestration.

These cords are to enable her to bring forth children without difficulty. The porcupine of all animals known to the natives is the one that has the easiest parturition. It lays the young without effort, just momentarily interrupting its walk to deliver itself of them and then resuming its motions as if nothing had happened.

The porcupine cords are intended to make the women porcupine-like in this important function. The Eskimo are convinced that they possess in this a great secret, and that the women of the white race suffer so much in labor because they don't know this.

To the same end, if during a woman's sequestration some one kills a female porcupine with young the feti are given to the woman, who slips them within her shirt and makes them slide through down to her feet to obtain the porcupine facility of delivery. She is allowed no fresh meat during the whole month except the flesh of porcupine.

Dried meat, fish and marrow constitute her diet.

She cannot drink from the common cup, but has her own tableware and uses no other. She suks water through a swan's bone which is afterwards tied around her neck. It serves together with the parkie to acquaint others of her condition.

A menstruating woman cannot sleep with her husband, more especially if he is young. She makes her bed apart from his, and both husband and wife sleep with their blankets over their heads that the effluvia of femininity may not pass from her to him and blast his manly abilities. After the flow is over; she has to wash herself from what may remain. If, however, she would happen to be very busy as during the salmon run, it is sufficient for her to wash her head very carefully.

The menses represent to the native mind the life giving principle; hence is much used as a medicine.

The substance is at times obtained by washing in a basin of water rags soiled with it. The liquid is then used as a lotion, to bathe young children or even administered to them as an internal remedy. Mothers believe that by so treating their children they preserve them from disease although the reverse frequently happens.

I remember such a case at Mouse Point, a village on the Yukon; where a healthy child was made to drink some of this medicine and the following morning it was seized with an eruptive fever which within twenty-four hours had covered the whole body with red patches. Soon, however, the fever subsided and the patches turned into running sores which did not heal for nearly a year.

In these would-be medical practices the mother always obtains the soiled rags from some other woman, never using her own, the idea appearing to be that the child has already received her entire stock of vital power; so she draws on others.

Now these people are quite faithful in their observance of these superstitious and others. Of course, individuals may disregard them at times, but they will never do so openly, and take care to persuade themselves and others as well that they are observing the customs even while acting

against them. One may safely say that they tend to maintain a certain standard of morality.

When the savage is brought into contact with whites and begins to disregard these superstitions, unless something can be substituted, the contact with our civilization invariably proves fatal to the race. I hope at some future time to take up other customs, especially those concerning pregnancy and childbirth.

SYMPTOMS.*

T. A. JONES, M. D.

ELDORADO, ILL.

Gentlemen: For the lack of a better subject I head my few remarks, "Symptoms." The idea of this paper is to gather all those symptoms which we find at the bedside, leading to a differential diagnosis, or, at least, rendering some aid. In the typical cases, especially if well developed, the diagnosis in many cases is easy. But in the atypical ones often we are at a loss, especially during the development of the case.

Do not feel that I think I have named all the symptoms in any given case I may mention, but I mention those that I think have assisted me. So it is with these special symptoms my paper shall deal, and, of course, I shall only speak of a few of the many cases that could be mentioned. So, after I have given you my few, then let us have what you have gained.

Also, please remember my remarks are more for the general practitioner than for the expert diagnostician, or specialist. Also, further, you will note I have made no special classes into which cases have been divided, as such could not very well be done with symptoms as I am giving you.

For at the bedside of the patient often we are at a loss, or, at least, somewhat doubtful as to our diagnosis. Please do not think I mean to infer that all this is my bedside experience; but I shall give you, as best I can, the symptom, or train of symptoms, that appeal to me in certain cases. 'Tis true that many times in watching the development of a case, we change our diagnosis from that made from initial symptoms. Furthermore, after the use of the laboratory or microscope, also we may change or confirm our diagnosis.

*Read before the Southern Illinois Medical Association, Nov. 4, 1915.

Each physician more or less is very likely to follow into a certain line of treatment for certain cases; the same may be truly said concerning his symptoms for his diagnosis.

True, the authorities give us a symptom or line of symptoms by which we are to be governed in certain cases; yet, with all this, we boil it all down and in the course of time select a symptom or train of symptoms that appeal to us more than others.

Pain is one of our most common symptoms for which patients seek relief. Pains are of different kinds and may occur periodically.

For instance, a pain in the top of the head as of some one catching the hair and pulling it is often found in females suffering with some menstrual derangement.

A pain in the occipital is often found in catarrhal conditions, especially when the patient is out in the cold wind. A pain in the mastoid from an invading otitis media; in which case you have an elevation of temperature.

In the temporal region and over or in the eye, from eye-strain.

Migraine often from indigestion—being more acute and probably throbbing from the stomach; depressing and more stupifying when in the intestines.

Pain on the side of the nose, especially when breathing in the cold atmosphere, from hypertrophied middle turbinates; near the nose on cheek when antrum of Highmore is involved, and in such case we may have an elevation of temperature; pain circling over the eye when frontal sinus is involved, with which there may be an elevation of temperature; pain within the ear, commonly called "ear-ache," when middle ear is affected, and the tympanic membrane is intact, or exit to external surface closed.

Pain in the cervical region near angle of submaxillary, with fever, in affections of the tonsils; white spots showing crypts involved—if a membrane and does not bleed on removing—membranous croup; if membrane bleeds on removal, or if membrane extends beyond the tonsillar tissue, diphtheria. Croup and laryngeal diphtheria are to be guarded for—if no elevation of the temperature, probably croup—if elevation of the temperature, be on guard for laryngeal diphtheria.

A pain in the chest wall more intense with

pressure, so-called "muscular rheumatism"; if in inter-costal space, probably neuralgia.

Pain with a deep inspiration, pleuritis; or if fever, lobar pneumonia.

Pain just below the point of the right scapula in affections of the liver is well known.

Cabot says, "Pain with a sense of constriction is of great diagnostic value when it occurs in the precardial region, pointing, as it does, in the great majority of cases, to angina pectoris."

Pain in gastric region immediately after meal, acute indigestion in stomach—often associated with the vomiting of undigested food; the gnawing pain when the stomach is empty, hyperhydrochlorhydria, or peptic ulcer.

Epigastric pain, emaciation, gradual onset (according to history given by patient) vomiting of blood, in cancer of stomach.

By the way, when you see a patient in the more mature years, with skin a little sallow, the mucous membrane of the mouth and tongue red or maybe paler than normal, edge of gums paler than the other mucous membranes, and especially a free flow of saliva, I shall not say, but wish to ask: What do you suspect?

Often we have an epigastric pain in appendicitis; if it be the first attack, with little or no elevation of temperature and shortly subsides, we may be at a loss about our diagnosis. Should it be a repeated attack with fever and relieved more or less by flexion of the thigh, then we think of appendicitis. We would have a similar train of symptoms, except there might be jaundice and probably no elevation of temperature, in affections of the gall-bladder.

In fevers due to some local infection, ordinarily the point of infection is referred to by the patient, tetanus being one often overlooked, as the wound may have been healed several days, and the paroxysmal attacks being the first symptom to arouse the family.

Concerning the eruptive fevers: In chickenpox and smallpox you see the eruptions—history of past twenty-four or forty-eight hours may be hidden or confused by the family—patient may or may not have been successfully vaccinated—(however, I have never seen a case of anything like a well-developed form of smallpox in a patient who had ever at any time been successfully vaccinated, regardless of the date of the vaccination) the nature of the papule or vesicle will

determine. If the papule or vesicle be regular, pointed, and the base truly circular, you may call it smallpox; if the eruption is not as just described but universal over all the body (i. e., not in crops), you may call it chickenpox, even if there has been no successful vaccination, and even if you have eruptions in the palms.

If you will allow the term, smallpox eruptions as they have appeared to me, give a very similar appearance to a segment from the smaller end of a goose's egg.

Another case: Often when a case gives a history of a fever for a few days, such history gathered from the family and the presenting symptoms, often I question whether I have malaria or typhoid. Many times I have found the following symptoms aid me in my diagnosis: If the eyes have a glassy appearance and the patient feels better in the morning, I think more strongly of typhoid; if vice versa, and the skin has a bluish, muddy and shiny appearance, I think more strongly of malaria.

Take measles and scarlet fever: You may see the patient on the first or second day of eruption, or even before. In scarlet fever often there is vomiting; eruptions appear on face and neck; or they may be on the chest, and the family tell you that the day before the patient's face was very red. In such case you would have a progressive eruption, which points to scarlet fever; in measles the eruption appears universally and simultaneously.

Again, a patient may call, stating that he has a foreign body in the eye. You look and see no foreign body in the eye and tell him so. His eye still pains him, and if you do not relieve him he seeks aid elsewhere. In many of these cases, by close observation, you will find a slight wound of the cornea.

Again, take cases of vomiting; especially in meningitis is this a leading symptom—meningitis from an infection in itself, or as a complication, which is common, of intestinal troubles with children.

Vomiting blood: Dark blood from the stomach; if bright red, probably not from the stomach.

Blood in the stools: The following has been given: Blood adherent to a well-formed stool generally comes from the rectum or anus (hemorrhoids). If evenly distributed in the feces, and

of a brownish color, it would suggest a hemorrhage either in the stomach or in the upper part of the small intestines, especially if the stool be solid. Evenly distributed blood in a fluid stool suggests the colon as the seat of trouble. Tarry black blood usually points to trouble in the stomach or duodenum. Fluid scarlet blood generally comes from the colon or the rectum.

Further, when considering the importance of blood in the feces, care should be taken to exclude blood coming from the mouth, the nose, the throat, the lungs, or even the vagina.

As I have said, in this paper I could mention only a few cases, compared to what might be brought out.

In fact, I have only meant in this paper to open the subject to the meeting, that we may *each* share the spoils of the *many*.

DISCUSSION.

Dr. Grinstead: This paper deals with indications and conditions that we are all guided by every day of our lives. There was only one point in the paper that occurred to me as requiring a little threshing out—the pain in the stomach from appendicitis. Pain from appendicitis is usually below the level of the navel, except for the first few days. The appendix gets its nerve supply from the same source that supplies all of the mesentery. Pains in the stomach and above the navel should make us think of gall bladder diseases or gall duct diseases or of ulcers about the pylorus or duodenum. Several years ago Dr. Jones, of Missouri, explained the deep boring pain in the stomach region, which attends gall bladder and gall duct diseases, by showing that the nerve supply to the diaphragm comes from the last four dorsal vertebrae and the two upper lumbar vertebrae is distributed in part to the diaphragm the terminal branches going to the gall bladder, which accounts for the pain in the gastric region from gall bladder and gall duct diseases.

Dr. Jones, closing: I was glad to get Dr. Grinstead's idea concerning appendicitis and the point is that the case that he spoke of was afterwards operated on and the appendix was pointing to the gastric region.

FRACTURE OF ELBOW JOINT.

FRANKLIN B. McCARTY, M. D.

CHICAGO, ILL.

In all fractures about the elbow the avoidance of deformity and limited function is of the utmost importance to the patient since impaired usefulness of this joint not only makes dressing and eating a considerable task, but directly decreases the earning capacity of the individual. Treat-

ment of injuries about the elbow, therefore, requires especial attention in view of the extensive injury sometimes following comparatively slight trauma and the consequent deformity and disability following overlooked lesions or inadequate treatment. The following case is cited as showing some variation from the usual type of injury in the general run of such fractures, particularly with regard to the dislocation of fragments:

Miss S., aged 35 years. The patient, who is of slight build, slipped and fell to the sidewalk, striking on left hip and left elbow without particular violence. When seen shortly afterwards she was unable to move the left forearm or hand and the elbow showed extensive edema and ecchymosis, with crepitus at the lower end of the humerus and dislocation of the whole forearm forward. Sensation and radial pulsation were unimpaired. X-ray showed a supracondylar fracture of the humerus extending from above downward and backward with separation of condyles and dislocation of the external condyle outward and forward and of



Fig. 1. Supracondylar Fracture of the Humerus.

the internal condyle inward and forward. The shaft of the humerus was placed downward and backward in relation to the forearm, the reverse of the usual dislocation in such fractures.

After reduction of edema by ice bags an attempt was made at reduction under ether anesthesia, traction being applied on the forearm with lateral pressure over the condyles, and the arm was fixed in acute flexion. X-ray showed practically no improvement in position and one week later open operation and suture of fragments was done.

OPERATION.—A 3½-inch U-shaped incision with the convexity downward was made over the elbow, the incision being carried down to the triceps fascia. The ulnar nerve was identified, dissected from its bed, and retracted with a gauze strip. The fascia was then divided transversely across the joint, avoiding the ulnar nerve and preserving the fibers of the fascia of the triceps which continue down on the outer side of the arm over the anconeus muscle to join the deep fascia of the forearm. The humerus showed a supra-

condylar fracture extending obliquely downward and backward with dislocation of the humeral shaft backward and of the forearm forward and upward, and a vertical intercondylar fracture extending into the joint. The external condyle, the smaller fragment, lay external and anterior to the radial head, beneath the brachialis anticus, and the internal condyle lay internal to the coronoid process of the ulna. The fragments were reduced by manipulation and were found to remain in position with least tension with the forearm in acute flexion and full supination. A hole was drilled through each fragment and through the shaft of the humerus and with heavy kangaroo tendon sutures the condyles were sutured to each other and to the shaft. The wound was closed in layers and position maintained by a plaster bandage from axilla to hand, the arm being held in acute flexion and supination. Operative convalescence was uneventful, and the temperature did not rise above 99 degrees at any time. The plaster was divided on the tenth day and fair sized soft callus found at that time. Passive motion was begun at that time, with the fragments held firmly in either hand to prevent undue motion. From this time union progressed rapidly and at 18 days the callus was quite firm with little flexibility of fragments. Active motion was begun, at this time increasing to the point of producing pain and the plaster was omitted at four weeks.

At the end of three months the arm showed a limitation of about 5 degrees in flexion and 10 degrees in extension with the carrying angle intact and was used in performing ordinary lifting and household work.

This type of injury occurs relatively often with an apparently slight degree of violence, the amount of damage being apparently all out of proportion to the trauma, due to the leverage exerted by powerful muscles having attachment about the elbow. The mechanism of the injury is probably a direct force acting on the olecranon, while the elbow is acutely flexed and the force transmitted forward and upward against the lower end of the humerus, the greatest strain being applied at the thinnest and weakest portion of the structure just above the condyles, the result being a transverse fracture at this point. The force from the olecranon is also transmitted directly to the ridge along the middle of the greater sigmoid cavity and this causes a vertical fracture between the condyles. That this is the case would be suggested by the fact that the line of transverse fracture, obliquely downward and backward, is directly in the line of such a force. T-fractures are very infrequent in children, whereas simple supracondylar fractures are comparatively common.

The usual position of fragments is with the lower fragments pulled upwards by the action of the brachialis anticus anteriorly and the biceps posteriorly and to be dislocated backward behind the upper fragment by the action of the triceps so that the lower end of the humeral shaft may be palpated in the ante cubital space, while the lower fragments rest against

the triceps fascia, with more or less overriding of fragments. Lateral dislocation varies, but is usually moderate and reducible. In this case the dislocation was rather unusual in that the upper fragment was dislocated backward and the lower fragments forward and divergently outward, and the whole forearm was dislocated forward and upward in relation to the humerus. This was probably due to the fact that the separation of fragments prevented the triceps from exercising any pull and the fragments were drawn downward and away from the median line by the flexor and extensor groups of muscles of the forearm which have their origins at the condyles. The dislocation of the internal condyle was limited by the insertion of the brachiales anticus and that of the external condyle by the prolongation of the triceps fascia into the forearm. Reduction of such injuries is often accomplished at the expense of a considerable widening of the intercondylar space, loss of normal relations of condyles, excessive callus, and occasional non-union.

As in all fractures at or near joint cavities, careful apposition of fragments is essential, for by this means the size of callus about the joint is minimized. Fragments which are separated by a considerable distance, and whose surfaces are constantly bathed in synovial fluid fail to unite readily. With union of fragments occurring where there is considerable lateral displacement of condyles the joint is widened and the normal obliquity of the joint surface is lost. In a normal elbow the internal condyle is about $\frac{3}{4}$ -inch lower than the external condyle and the trochlear surface of the humeral articulation inclines upward and outward so that in extreme flexion the forearm and arm form an angle of about 30 degrees, the hand being carried to the junction of the outer and middle thirds of the clavicle, whereas in extension the supinated forearm forms with the humerus an obtuse angle away from the body, the so-called carrying angle.

In operative procedures on joint cavities emphasis should be laid on careful preparation of the part, close approximation of fragments, avoidance of undue force in the already traumatized tissues and rigid maintenance of asepsis. It is advisable to wait about one week after injury to allow for edema to subside and for absorption of infiltrated products. The use of absorbable material in and about joint cavities is advisable, and either kangaroo tendon, heavy chronic catgut or bone pegs are satisfactory. Early motion is indicated, the exact time depending on the rapidity of repair, callus being sufficiently firm to permit guarded motion, as a rule, in ten days to two weeks. The greatest care must be exercised to support the site of injury, and motion should be limited to a range which produces only moderate pain, otherwise irritation and increased callus may result. Healing progresses more rapidly in cases which have been operated on due to accurate apposition of parts and for the same reason there is less tendency to excessive callus. Active motion can thus be started somewhat earlier than with cases not operated on.

Unsatisfactory results may be due to deformity,

limitation of motion or nerve injury. Deformity may be caused by widening of the intercondylar space, to a change in level of the condyles with consequent loss of carrying angle, or to displacement of both fragments and forearm. Limited motion may be partial or complete. Loss of flexion is due either to excessive callus between the coronoid process of the ulna and the humerus or to dislocation of the upper fragment forward. Loss of extension is a result of callus in the olecranon fossa impinging on the olecranon process, or to dislocation of the upper fragment backward. Ankylosis, either complete or nearly so, is a tremendous handicap to the patient, for there is no position in which a satisfactory result can be obtained. Ankylosis may result from excessive callus about the joint, from extravasation of blood into joint and tendon sheaths with subsequent fibrous degeneration, or from prolonged immobilization which may produce contraction of muscle, shortened fascia and ligaments, thickened and shrunken capsule and fibrous changes in articular cartilage. Nerve injuries are limited practically to the ulnar and median nerves, more commonly the former, and may occur immediately after injury through pressure of callus or apparatus and produce the typical claw hand with overextension of the first phalanges and flexion of the remainder.

OUR HOSPITAL.*

GEORGE W. ROSS, M. D.

WATSEKA, ILL.

Mr. President and Members of the Bi-County Medical Association:

I have chosen this subject both on behalf of the trustees of the hospital and to better acquaint you with the aims, purposes and methods of management of this "Our Hospital."

I say "Our Hospital" for it has been erected and equipped by the philanthropy of Mrs. Anna H. Donovan and other public-spirited citizens for the use of the general public of the city of Watseka and Iroquois county. That does not necessarily mean that its use is limited to the county, but that its needs shall be first taken care of.

It shall be the aim of this hospital to become a factor in the life of this community and the limits of the community ought not to be the city of Watseka and its immediate adjacent territory, but the whole county and even our neighboring counties. The common factor of all hospitals is to try and make the sick well. Another factor of this hospital will be to educate both the general public and the physicians, who will avail

*Read before the Iroquois-Ford Medical Society, December 7, 1915, at Watseka, Ill.

themselves of its use. The hospital and its doings will constantly stand out before the public, thus keeping them constantly interested and of necessity better informed. The community will discuss the hospital and its doings, and healthy discussion is education. The physicians coming in more intimate contact with each other will naturally gain new ideas and methods and naturally broaden out. Thus we shall have a community more enlightened on subjects medical and thus more easily managed and reasoned with and a more efficient group of practitioners. Education recognizes efficiency, begets confidence and makes success.

The purpose of this hospital is to furnish care and attention to the afflicted.

Quoting Smith in the *Journal A. M. A.*, of recent date, "It is an accepted fact that today a person who is actually ill with any serious illness requiring medical or surgical attention stands a much better chance of recovery if he receives treatment in a hospital."

We see that a community without a hospital has a serious handicap and is not getting that which is justly due it. It is, also, an established fact, that physicians in communities without a hospital do not measure up with those in communities with hospitals.

Its purposes shall be to reach out to those who otherwise cannot afford hospital treatment. While this is not an endowed hospital, part of its running expenses is appropriated by the city of Watseka and Iroquois county, thus opening its doors to the poorest citizen. While a part of the running expenses come from the aforesaid sources, it is not to be a charitable institution entirely. Most of the hospitals of this country are either charitable institutions or rich men's havens, but this institution shall cater to all three classes. It is getting enough support to accommodate the poor who cannot pay and at the same time bring down the prices to those in moderate circumstances to bring it within their means. On the other hand, we will have accommodations for the most fastidious.

The method or management is one that ought to meet the approval of all. Its foundation is justice to all. There will be no attending staff; each to bring his patients will have full and absolute charge of them. The physician who comes only occasionally shall receive the same treat-

ment from those in charge that the one who comes often shall receive. The local physicians shall receive no more favors than the one in the most remote districts of the county. There will be no tampering with patients and favoritism to physicians will not be tolerated. To repeat—Justice and Equality shall be the foundation of the management.

The building is thoroughly modern and will be completely equipped in all its departments. It is ideally situated in the outskirts of town, giving an abundance of fresh, wholesome air and quiet, and at the same time easily accessible.

We, as physicians of this community, ought to be proud of so beautiful a building in which to carry on our work. All praise should be given the trustees in their untiring, faithful and efficient work and last, Mrs. Donovan, who made the building of this building a possibility, should and does receive the praise due a public benefactress.

PELLAGRA, WITH REPORT OF CASE.*

ROBERT L. KANE, M. D.

RALEIGH, ILL.

Pellagra is an endemic tropho neurotic disease of dietary origin, affecting the cerebro, spinal, digestive and cutaneous systems and having a tendency to seasonal recurrence.

The existence of pellagra can be traced back to the latter part of the seventeenth century, where it was noticed in certain parts of northern Italy, southern France and certain districts of Spain.

It was first described by Frapolli, one of the physicians to the Hospital of Milan, in a publication which appeared in 1771.

Dr. M. Billod described a similar disease which was prevalent among the insane in the asylum of Rennes and Angers.

Pellagra was first reported to the Royal Society of Medicine in 1829.

In the southern states sporadic cases have been reported for the last twelve or fifteen years but not until 1906 was the nature of the disease known.

Two ideas are held by members of the profession. The idea that pellagra is due to intox-

*Read at the forty-first annual meeting of the Southern Illinois Medical Association at Harrisburg, Nov. 4, 1915.

ication by some product of deteriorated maize was formerly almost universal and even now the Italian government spends a large amount annually for maize inspection and destruction of deteriorated maize and its products.

Dr. Joseph Goldberger, of the United States Public Health Services, in Public Health Report, stated the following conclusions:

1. That pellagra is not a communicable (neither infectious, nor contagious) disease, but that it is essentially of dietary origin.

2. That it is caused by eating a diet in which the animal or leguminous protein component is disproportionately small and non-leguminous vegetable component is disproportionately large; and that no pellagra develops in those who consume a mixed, well balanced and varied diet, such for example as that furnished by the Government to the enlisted men of the army and navy.

Furthermore, in the diet of those developing pellagra, there was noted a disproportionately small amount of meat or other animal protein food, and consequently the vegetable food component, in which corn and syrup were prominent and legumes relatively inconspicuous elements, forms a disproportionately large part of the ration.

The inference may, therefore, safely be drawn that pellagra is not an infection, but that it is a disease essentially of dietary origin due to absence from the diet of essential vitamins, or possibly, as is suggested by Meyer and Vogtling's works, by the presence in the vegetable food component of excessive amounts of a poison such as soluble alumin salts. The condition which favors the occurrence of pellagra, is similar, at least in some degree, to that producing such other nutritional diseases as, for instance, beri-beri or scurvy.

In Europe, poor hygiene, poor food and poverty are unquestionably important factors in the etiology.

The corn theory has been the most strongly advanced in Italy; we might summarize the different factors in which Indian corn plays an important part in the etiology of the disease as follows:

1. Indian corn is deficient in or lacks some nutrient principle necessary for health, and pellagra results from a diet limited too strictly to that cereal or its products.

2. Corn contains some toxic substance which in susceptible individuals produces the disease. Corn undergoes some form of decomposition in the intestines of some individuals as the result of growth of bacteria, the toxins thus produced ex-

citing the disease. Healthy corn might be innocuous, yet at some stage in its production or consumption it might undergo decomposition, as the result of the growth of certain fungi.

Various molds and bacteria have been isolated and assigned an etiological role in the disease: such as *Boetarium maydis*, *Bacillus pellagrae*.

The second group claims that pellagra should be classed as an infectious disease. The method of infection as well as the causative organism both remain to be discovered. There are two methods of infection to consider possible: Transmission by insects, as in malaria, yellow fever and the bubonic plague and transmission by infected drink or food taken by the mouth, as in typhoid.

The fact that pellagra presents the typical picture of a plague, a disease showing distinct pathological entity, which has in a few years spread over a vast new territory, classes it as clearly as an infection due to a living organism as the spread of any other plague or infectious disease.

The severity of the disease and the mortality rate have both decreased. This is the rule with all infectious diseases when invading new territory.

So with pellagra, intense cases were seen at first and now the average is more moderate and the death rate lower. The annual mortality rate in pellagra was 30 per cent. in 1909 and only 10 per cent. in 1913. Several insects have been investigated, such as the fly, bad bug, flea, tick, louse, cockroach and mosquito, but no positive evidence incriminating any one has been discovered.

The fact that a large percentage of pellagra cases dates their first onset from a supposed attack of ptomaine poisoning is suggestive of a possible dietary or toxic origin of the disease. In districts where the disease is endemic it attacks persons of all ages; women are affected more frequently than men, some giving the ratio 4 to 9.

As to occupation: in Europe, the sea laborer suffers most; in America nothing has been determined in this regard except the investigation by the Thompson-McFadden commission, in which a large proportion of cases were found among women employed in housework.

The disease seems to be confined to the tropical and warmer sections of the temperate zone;

otherwise eliminate appears to exert no influence in the etiology. All observers agree that even in pellagrous sections the disease is more or less restricted to certain localities.

Attempts at transmission of the disease have usually been unsuccessful. Harris was successful in producing in monkeys symptoms resembling human pellagra, employing subcutaneous, intravenous and intra-cranial injections of a filtrate prepared from human pellagrous tissues.

For convenience I have divided the symptoms into three general divisions—gastro-intestinal, nervous and cutaneous.

The first symptoms are usually concerned with the gastro-intestinal tract.

The stomatitis reminds one very much of aphthous sore mouth; the tongue becomes swollen and denuded, presenting a dry appearance, in severe cases with more or less superficial ulceration along its edges and upon its under surface with yellowish sloughing which bleed easily.

The entire buccal mucous membrane of the pharynx and larynx may also present a similar inflammation.

The first evidence of gastric derangement is usually a slight but progressive indigestion, with a marked flatulence, followed later with extensive watery diarrhea in severe cases; in mild cases constipation may be present.

The motility of the stomach is increased in the first stage, but in the last stage there may be complete paresis.

Hydrochloric acid and pepsin are absent—a very valuable diagnostic symptom.

Other organs may show evidence of a toxic condition; for instance, vaginitis, endometritis, and nephritis with polyurea and albuminuria, which indicate that the system is charged with a poison and every organ is doing its best to rid the body of noxious toxins. As the gastro-intestinal symptoms advance we will notice various nervous symptoms very similar to those produced by acute intoxication.

An important observation was made by Wilgus and Singer, who noted in the terminal stages in pellagra, the symptom complex also described by Myer as that belonging to central neuritis.

In examination of pellagrous patients at Peoria, Bassac found changes in the reflexes suggesting the following: 1. Probably pyramidal

tract degeneration. 2. Posterior column degeneration. 3. Combined degeneration.

In the recurrence that takes place from year to year the general symptoms become more marked; there is tenderness upon pressure over the spinal nerve, muscular weakness and loss of muscular power especially in the legs; mental worry and depression, anxiety and discontent, loss of memory, vertigo and in some acute mania occurs.

The patella reflex is always exaggerated in the first stage, but becomes diminished and finally lost in the last stage.

Various paralyses may occur, such as spastic paralysis, ptosis, diplopia, amblyopia and mydriasis.

There may also be involuntary evacuation of the bowels and bladder near the end of the scene.

In observing the development of the skin lesions, it is noted that at first they are large or small muscular lesions of light or dark red tint which soon fuse, forming a patch of dermatitis resembling a sunburn.

As the evolution of the disease advances the color of the lesions deepens and assumes a reddish brown or dark purplish blue. Early in the process there may be marked swelling and in the more active cases on the erythematous base there develops bulbous lesions, which may be large or small.

In from one to two weeks desquamation begins, lasting from a week to several months. When desquamation is complete there remains a delicate, smooth complete skin.

Destruction of the epidermis may be so complete that a glove like cast of the hand can be removed. After several recurrences the skin finally becomes hard, roughened, sealy, pigmented, loses its elasticity and the normal lines are exaggerated.

Another symptom which is always present is a decreased hemoglobin, being 80 or 90 per cent. in the early stages of the disease, but finally reaches 50 or 60 per cent. in the last stages.

TREATMENT.

No antidote or specific for this insidious unidentified poison has thus far been discovered.

Mild cases will recover without treatment, because of this fact, many remedies have been credited with being effective, and some as being specific.

Salvarsan, the one most widely lauded as a specific, has been tried with indifferent results and many deaths have resulted by its use.

The treatment most widely used is the gastrointestinal antiseptics and dietary.

A large number of antiseptics have been used, such as salol, sulphocarbonate, beta naphthol, sulphur and freshly prepared chlorine water.

When there is a deficiency of hydrochloric acid and enzymes in the gastric secretion, hydrochloric acid and pepsin should be given.

The diet is of the utmost importance. Goldberger of the United States public health service recommends a diet consisting of milk, fresh meat, eggs and plenty of peas and beans.

For the skin lesions, a soothing application acts best, such as zinc oxide combined with sodium hyposulphite and resorcin.

Some form of salicylates will usually relieve the neuralgic pains; for the neuritis developing in every advance case, dilute phosphoric acid and nux vomica are usually beneficial.

The stomatitis will usually yield to ordinary alkaline mouth wash, but in obstinate cases silver nitrate may be used.

The pellagrous case, of which I shall give a short account, came to my office April 19, 1915, seeking relief for a persistent diarrhea; also mentioned that the back of his hands were slightly inflamed due, he thought, to working in cement. The diarrhea, he said, was due to a chronic indigestion dating back several years.

He had lived in Oklahoma from 1902 to 1908, when he moved to Arkansas, where he lived until March, 1915; at which time he moved to Illinois. In 1913 he spent most of the spring and summer in New Mexico, and attributed the attack of excessive diarrhea to the water of that State.

When first examined by me, I found only the macular erythematous patches in the center of the dorsal part of the hand, and a very much distended and tender abdomen. The pulse and temperature were normal.

A few days later the small erythematous patches had spread over the entire dorsum of the hand. The stools were more frequent, of ash gray color, very watery and amounted at times to almost a gallon at each evacuation.

There was evidence of nervous disturbances, with depression, anxiety and discontent.

May 6 I found my patient suffering from, as I thought, a well developed case of pellagra.

The stomatitis had developed, the hands were beginning to shed the old skin, leaving a perfect new skin beneath.

There had developed new areas of dermatitis on each

cheek, also on feet, legs and hips. Temperature 101.5, pulse 86.

I prescribed the following treatment: For the stomatitis a simple alkaline thymol compound; a powder consisting of bismuth subnitrate, pulv. ipecac, pepsin and pulv. saccharine; for the diarrhea, a solution of sodium hyposulphite, resorcin and zinc oxide, for dermatitis.

All symptoms, so far as I could tell, had disappeared by Sept. 3, 1915, the patient having gained 18 pounds in weight.

A house without a plentiful supply of pure, fresh air in it all the time is a mighty poor house to live in.

"Calcidin for colds"—should be the first thought every time you prescribe for the prevailing influenza. You know the value of iodine to sterilize the skin or an infected wound area. Ever stop to think that iodine is eliminated by the respiratory tract, just where it can do the most good in bronchitis, tonsillitis, and the like?

It will be noted that in this issue Dr. Broughton's Sanitarium advertisement has been changed to Dr. Weirick's Sanitarium. This is not a material change, as the management remains the same and the business is being conducted along the same lines as heretofore. This is evidenced by the fact that for eight and one-half years Dr. Weirick has been connected with the institution—five as Assistant Superintendent and the balance as Superintendent. He now has associated with him Dr. W. H. Cunningham, who is a very capable man.

It is interesting to know that of the cases which have been treated here—that is drug and liquor addictions—sixty to sixty-five per cent. of the former keep well, and three out of four of the latter "make good."

The H. K. Mulford Company announces the establishment of a department of Sanitation and Epidemiology, under the executive management of Thomas W. Jackson, M. D., expert in preventive medicine, sanitation and the study and control of epidemic diseases.

The most important subjects before the American people at the present time relate to the public health. Work in this field is frequently beyond the reach of the existing health and sanitary departments of the various municipalities and smaller towns, on account of limited appropriations.

The department does not propose to enter into competition with the constituted public health authorities, Local, State or Federal, but to aid and assist these authorities in every possible way. The work is essentially one of service and education, and will be developed along these lines. The resources and equipment of the Mulford Laboratories, Chemical and Bacteriological, will be utilized, thus placing at the disposal of the New Department the entire laboratory facilities and expert services of the H. K. Mulford Company.

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FEBRUARY, 1916

Editorials

NEWSPAPER MEDICINE.

The medical men who have had access to a majority of the newspapers of Illinois during the past few weeks, must have been impressed by the great amount of misinformation, relative to the present so-called "grip epidemic" recently sweeping over the United States, published by these newspapers. Much of this (mis) information has been given out by doctors. Perhaps they have not been accurately quoted in most instances, but in glancing over these publications, one cannot but wish that doctors, when talking for publication, might be more careful. When a doctor talks on medical subjects, either for publication or to an individual, he is educating the public, and should be careful that his talk conforms to facts or to accredited opinions or theories.

Much advice has been given for the prevention of this malady—grip or influenza. Laboratory reports would indicate that the epidemic was not influenza at all, as few laboratory diagnoses were made of this disease. Methods of prevention have been freely discussed, but, strange to say, the one fact which seems to favor prevention—a high state of vitality or resistance—has almost

escaped notice. Quarantine and isolation theories have been advanced. Does it not seem crude to talk such methods relative to a disease which spread all over the United States in less than forty-eight hours, and appeared in all portions of a large city on the same day? People have been advised to stay at home indoors; they have also been advised to be out of doors all the time—sleeping out or in cold rooms. Probably most of the advice would be good for some one individual, but almost any of it would prove disastrous to others not suited.

It is a difficult matter to educate the public in matters medical. It is more difficult to correct wrong theories once accepted by the public as truths. Only a few decades ago people were taught to shut out fresh air from the sick room or dwelling. It has taken years of endeavor to start a fresh-air crusade, and many of the older generations will never become enthusiastic converts. Now that people are seeing the value of fresh air, physicians who are educating the public should be wise in their methods of teaching. This will apply not only in the matter of fresh air, but also in the education of the public on all questions pertaining to the health of the community.

The purpose of the medical profession must be prevention of disease by education of the public, and erroneous theories advanced by individuals will not only discredit the profession, but also delay the era of preventive medicine.

THE HOSPITAL QUESTION

The hospital question is looming large in current medical affairs and although it has not come to an issue yet, the day is not far distant when in justice to the rank and file of the profession the whole proposition must be taken up and placed on a better and fairer basis. The general practitioner, in large cities especially, finds it impossible to secure hospital care for his patients without the necessity of giving them up to another practitioner, not infrequently an active competitor. Thus the economic side of the question is becoming acute—for patients will go to hospitals. In the majority of instances people would prefer to remain under the care of their regular physician. Provision ought to be made, therefore, whereby the original attending physician could continue in charge of a patient who from necessity or otherwise seeks hospital conveniences, and the hospital surgeon occupy a position more nearly like that of the consultant in

private practice. This would protect the interests of the original medical attendant without prejudice in any way to the patient or hospital. Unfortunately, under present conditions a patient who enters a hospital severs all relation with his original physician—unless this physician happens to be a member of the hospital staff—and even then if the patient has to go to a department of the hospital with which his doctor is not connected or at a time when he is not on duty. As a consequence, every practitioner of medicine—in New York City for instance—knows that sending a patient to a hospital means with the rarest exception that he has seen that patient for the last time in a professional capacity. No one will deny that this works a serious hardship on the medical men who do not have hospital connections, and these of course are bound to constitute the great majority. It is quite obvious that the question is too complex and has too many factors that must be considered, to admit of any full and comprehensive discussion at this time or within the confines of so brief an article as this must necessarily be. There is much to be said in extenuation at least—if not in excuse—of the present system of hospital management. But the condition is becoming intolerable to many a practitioner and unless present hospitals recognize the situation and make some provisions whereby the physicians of the community may command hospital care for their patients without relinquishing them completely, the doctors will take the matter into their own hands and organize institutions that will meet their professional needs. General practitioners are not seeking to do appendectomies, gastro-enterostomies or major surgery generally, but there is a large amount of ordinary emergency surgery which every physician is qualified to handle, and any number of medical cases which medical men in active practice should have the opportunity of taking to a well conducted hospital, with its many obvious advantages, and there direct their treatment, without let or hindrance from any one. We have no idea of advocating surgery by the under qualified or inexperienced. The restrictions in this direction should be increased and made more rigid, not diminished. Operative surgery must be surrounded by every safeguard, and every effort enlisted to raise its efficiency. There can be no question of this. But the general practitioner should not have the legitimate field of his activities curtailed by the denial of hospital facilities. His license to practice confers upon him very definite rights and privileges and if he cannot secure these through existing agencies, he will sooner or later take steps to develop agencies through which he can.—*American Medicine*, October, 1915.

The above editorial, taken from "American Medicine," was probably suggested by conditions as seen in New York, but which are more or less common to all large cities and, perhaps to a lesser degree, to the smaller ones. The condition is in fact becoming intolerable, and as more

people go to hospitals each year, just so does the rank and file of the profession lose their prestige,—not because the profession, as a whole, is incompetent, but because of the influence brought to bear upon hospital patients. The efficiency of the hospital of today is not up to its maximum just because of this condition; because of its efforts to increase the business and reputation of its chief operators or its chief clinicians.

This is not as it should be, and the question will be solved and is being solved. The solution will probably be found by the physicians owning and controlling hospitals. In some of the smaller cities physicians are forming companies and building hospitals for the accommodation of their own patients. This will solve the problem for them, as they may then control the hospital policies. While this method is more difficult of accomplishment in large cities, it still has been proved possible, and will probably eventually solve the difficulties.

At the present time there is in Chicago a large hospital owned and controlled by doctors. A stock company was formed and all of the stock sold to physicians. It has been necessary to enlarge this hospital to accommodate the patients of other doctors. The work of the physicians in this institution compares with that of the richly endowed hospitals. It has been successful financially, and not the least feature has been the amicable relations of the physicians who bring their patients to this institution. Another feature of greatest value in this arrangement is the facilities for team work among the doctors, while they may at the same time keep control over their patients.

There is now a company of doctors forming to build a large hospital in another part of the city. This hospital will be a stock company, and doctors in general practice will own the hospital and control its policies. Doctors, generally speaking, would rather not bother about the administration of hospitals, but they are being compelled to do so as a matter of self-preservation, and the sooner others do so, the sooner will the hospital question be solved.

VITAL STATISTICS IN ILLINOIS

The bright future of vital statistics in Illinois is sufficiently set forth in our Public Health sec-

tion which faithfully records the advance which will take place as our present excellent law is put in full operation.

Requested to supply a statement of the mortality statistics of the State for last year, Dr. Drake, secretary of the State Board of Health, wrote that "We will be unable to supply any mortality statistics of Illinois worthy of any consideration whatever. Under the old law less than sixty per cent. of the deaths were recorded."

The only exception to this statement applies to the "Registration Cities" which, through local ordinances require death certificates before the bodies of deceased persons can be disposed of.

In Chicago the reported deaths for 1915 were 34,730, giving a death rate of 14.19 per 1,000 population. Omitting the 812 Eastland victims would give Chicago a rate of 13.85, which equals the lowest rate ever recorded, in 1904. The principal saving was in deaths from pneumonia, which were 23 per cent. fewer than the average for ten years—1906-1915. Typhoid fever deaths declined 65 per cent. The contagious diseases decreased; scarlet fever, 85 per cent.; whooping cough, 65 per cent.; diphtheria, 16 per cent. Diarrheal disease deaths decreased 19 per cent. Nephritis deaths were nearly 15 per cent. fewer, and tuberculosis deaths declined 3.4 per cent. The only noteworthy increases were from measles, 20 per cent.; cancer, 7 per cent., and heart disease, nearly 11 per cent.

With the exception of measles, all diseases over which sanitary control has at present any marked effect show satisfactory reductions.

Of the other registration cities in the State the latest available statistics are the mortality figures just issued by the U. S. Bureau of the Census for the year 1914 as follows:

Death Rates per 1,000 Population.			
	1914	1913	1912
Aurora	14.1	14.2	14.5
Belleville	14.4	15.4	13.1
Decatur	12.3	13.0	12.2
Evanston	11.0	10.2	11.5
Jacksonville*	28.6	25.5	23.9
Quincy	14.8	15.7	14.6
Springfield	15.6	17.6	15.8

*Contains State insane hospital.

ALIENISTS AND NEUROLOGISTS.

The Chicago Medical Society announces the fifth annual meeting of Alienists and Neurologists of the United States, to be held under the auspices of the Chicago Medical Society, June 19 to 23, 1916, at La Salle Hotel.

We wish to invite you to attend these meetings and participate by paper or take part in the discussion of the various subjects and other matters that may come before the conference. We hope to enlist your valuable assistance in a campaign of education of physicians and the public as to the causative forces of mental deficiency and will appreciate your assistance. As physicians and the public have taken great interest in these meetings the Chicago Medical Society, even though at great expense, has decided to continue these annually without expense to others.

Resolutions were passed at the meeting in 1915, requesting the governors of the various states to appoint committees to investigate the causative forces of feeble-mindedness.

Reports of these committees will be made at the meeting in 1916. The reports of the general committee will be forwarded to the governors of each state. Resolutions will be formulated by the conference that will be instructive to legislatures, to the end that reasonable laws may be passed that will in a measure at least be preventive of mental deficiency.

The governors and boards of administration or control, are taking great interest in these meetings and giving us valuable assistance to carry forward this movement. We hope also to interest the editors of the various medical journals in this movement and through them enlist the help of physicians. If a campaign of education were made against the causative forces of mental defectiveness as there is against tuberculosis, a wonderful amount of good would result. This subject should interest us, first, from a humanitarian standpoint, second, from an economic standpoint. The judges of our courts are acquainting themselves with mental diseases; they give us the information that a large per cent. of crime is committed by mental defectives and a large percentage of the prisoners in our penal institutions are also defectives and should not have been confined to prisons of this kind, but sent to farm colonies or other reformatory institutions with proper environment. In

our state asylums, there are many cases of insanity, which if they had been diagnosed early, could have been cured. This is especially the case as regards dementia praecox and lues. The state would not have been burdened with the immense expense of their long confinement and their families would have been relieved of the humiliation of their commitment.

There has been no branch of medicine so neglected as the study of mental diseases and psychology.

There should be a great reform in this respect within the near future.

W. T. MEFFORD,
Secretary of Conference,
2159 Madison street.

WM. O. KROHN, Chairman,
29 East Madison street.

TO THE COUNTY SECRETARIES.

The following resolutions were unanimously adopted by the Madison County Medical Society at its January meeting and they are hereby printed and sent to you with the wish and the hope that you will bring them to the attention of your county society at its next regular meeting and to have them adopted:

"WHEREAS: The State Board of Health has made announcement in the December number of the Illinois Medical Journal of its intention to present to the next legislature an amendment to the Medical Practice Act, that will enable all reputable, regularly licensed physicians to enjoy reciprocity privileges, now therefore be it

Resolved, By the Madison County Medical Society, in regular session assembled, that it heartily congratulates the State Board of Health on this most welcome proposed amendment, and be it further

Resolved, That the secretary of the society be and he hereby is instructed to forward a copy of this resolution to the State Board of Health, and also to each legislator in Madison county, with instructions to vote for the said proposed amendment."

As will be seen by the wording, the State Board of Health will make an attempt at the next session of the legislature to have the Medical Practice Act so amended as to restore to the diploma of the old physician some of the value that it originally had.

At the annual meeting of the Southern Illinois Medical Society, held in November, Dr. C. St. Clair Drake, secretary of the State Board of Health, read a paper, an extract of which is hereby given.

"Under the prevailing provisions of the law the young man fresh from medical school and utterly void of the practical experience which makes the big, well rounded physician, may be licensed in other states through reciprocity, while the older physician, perhaps the young man's preceptor or teacher, is accorded no

such privilege. There is a disposition in this day of rapid progress to attribute all virtue and knowledge to the younger generation and the tendency to relegate the older men to the side lines before their time. I cannot feel that the man who is licensed prior to 1899 is less competent, less qualified or less worthy of reciprocity with other states, than the graduates of more recent year. Under the existing state of affairs, reciprocity is denied approximately 75 per cent of the medical profession of Illinois and accorded to but 25 per cent made up of the younger generation.

After giving this subject serious consideration the Illinois State Board of Health has drafted an amendment to the Medical Practice Act, which if adopted, will extend to all legally qualified, reputable practitioners in the state the right to license by reciprocity in those states with which Illinois may establish such an agreement."

This subject has been agitated all over the state for many years and we in this county have spoken in no uncertain tones. Our fellow member, Dr. S. T. Robinson of Edwardsville, many years ago read a paper before the State Society, entitled, "Our Degraded Diploma," which abounded in logical arguments against existing conditions. When the older men received their diplomas they were good in every state in the Union, but little by little their rights have been taken away until now these diplomas are good only in Illinois. If you are qualified to practice medicine in Illinois, are you not qualified to practice in Missouri? Have you become dangerous to the public health because you have crossed the state line?

And now, Brother Secretary, we ask you to assist us in the movement, by bringing these resolutions to the attention of your medical society for consideration and adoption.

A copy of this bulletin has been sent to every county secretary in the state of Illinois, according to a list contained in the last number of the State Journal. If you are no longer the secretary of your society, if your successor has been elected, we ask you to send this bulletin to the present secretary, so that it may be properly brought to the attention of the medical profession in your county.

Public Health

ILLINOIS SHOWS HEALTH PROGRESS.

RESUMES POSITION AMONG STATES PROGRESSIVE IN HEALTH PROTECTION.

NEW LAWS FOR GOOD OF THE PEOPLE.

The year 1915 stands out in the history of the Illinois State Board of Health as the most important year since the creation of the Board in 1877. In times past Illinois was properly re-

garded as one of the foremost states in sanitary and public health administrations. It cannot be said that the state has stepped backward, but, to a certain extent, it has marked time while other states, taking advantage of the tremendous scientific progress of recent years, have gone ahead rapidly. Illinois consequently has appeared to lag behind.

Within the past year, however, Illinois has resumed its old-time place in the forefront in public health work. This was made possible by the passage by the Forty-ninth General Assembly of a large number of bills affecting public health and social conditions and broadening the powers and the scope of the State Board of Health.

Some of these laws were absolutely basic in character and were essential to any material progress in sanitary lines. The passage of many of them had been sought in past years without success. Practically all of the more important measures were recommended for passage by Governor Edward F. Dunne, in his message to the General Assembly.

Perhaps the most important step taken in public health administration in over thirty years was the establishment of a modern and accurate system of the registration of births and deaths under the provision of the new law. For a number of years Illinois has stood almost alone among the larger states as being unrecognized in its vital statistics by the United States Bureau of the Census. The new method of birth and death registration, which has just been placed in operation, not only gives the State, for the first time, a reliable foundation for its public health work, but it removes a definite stigma which Illinois has borne among her sister states.

Another important measure earnestly endorsed by Governor Dunne has been the establishment of a Bureau of Sanitary Engineering, charged with the supervision of water supplies, sewage and waste disposal and other technical sanitary matters having to do with disease prevention. The State Board of Health has long been handicapped in having no department capable of handling this essential part of this work. The Bureau of Sanitary Engineering, working closely in touch with the State Epidemiologist, which is likewise a newly created office, will place the prevention of communicable disease in expert

and efficient hands, and these agencies will be further strengthened by the recent division of the State into sanitary districts each with its full time medical health officer, residing in his own district and working under the supervision of the Board.

The district health officers will not only have charge of the supervision of contagious diseases and insanitary conditions in their districts, but they will be advisers of municipalities and will bring about frequent conferences of local health officers for the purpose of elevating the standards of public health protection in the various towns and cities.

The laboratory diagnosis of communicable disease which has been carried on for a number of years from the central laboratory at Springfield, has been made more generally available to the physicians of the State by the establishment of two branches, one in Chicago, for the northern part of the State, and another at Mount Vernon for the southern part of the state. A branch laboratory at Champaign will probably be established in the near future.

Quite as valuable as its diagnostic laboratory service has been the free distribution of preventive and curative serums and vaccines. For some time the State has distributed diphtheria antitoxin, and more recently vaccine for the prevention of typhoid fever, and during the past year smallpox vaccine and packages of nitrate of silver for the prevention of blindness of children have been added to the list. In addition to the ordinary demand for such agents the State Board of Health, during 1915, furnished sufficient typhoid vaccine to immunize all of the members of the Illinois National Guard and the inmates of a number of state institutions.

Several years ago a law was passed authorizing the State Board of Health to assume public health control in municipalities whenever communicable disease spread beyond the control of local authorities. It was felt, however, that this measure was one for employment only as a matter of last resort and that acting upon it would reflect prejudicially upon the communities involved. During the past year, however, the State Board of Health has taken this action in a purely friendly way and at the instance and co-operation of cities affected, with the result that several municipalities have been saved thou-

sands of dollars and normal business and social conditions have been promptly restored. With all of its manifold activities in directly dealing with disease, the State Board of Health has insisted that a greater amount of public good will ultimately come from systematic and widespread education in public health matters than through any other method that can be employed. Pursuing this policy, the Board has created an excellent mechanical public health exhibit which has attracted a great deal of attention in all sections of the State, where it has been shown in connection with county fairs, meetings of state medical and social organizations, and in various other public exhibitions. In addition to this method of bringing public health graphically to the attention of the people, the Board has published new and thoroughly modern circulars of information on the cause and prevention of practically all of the communicable diseases and these have been distributed widespread throughout the State.

The distribution of educational literature has been simplified through the establishment of about 350 agencies scattered throughout the State, with at least one in each county. These agencies are utilized for the distribution of curative vaccines and containers for transmitting specimens to the laboratories, and also for the distribution of all forms of public health educational material.

To meet the need of popular education, the Bulletin of the State Board of Health, formerly published as a technical journal for the use of physicians, has been made thoroughly popular in character, has been rechristened as the *Illinois Health News*, is profusely illustrated, and is sent free to all persons throughout the State who may desire to receive it.

This almost revolutionary change in the activities of the State Board of Health has excited comment not only of the newspapers and other publications in Illinois, but has met with approval in journals of national circulation and on the part of sanitary and public health officers of other states. In the words of the *Journal of the American Medical Association*, receiving the medical approval of the nation, "Fortunately for the people of the state, a new era in public health activity seems to have dawned. Illinois is to be congratulated on her progress, which all friends

of public health will hope is only a promise of better things in the future."

FREE SCHICK TEST OUTFITS FURNISHED BY STATE BOARD OF HEALTH

THE STATE BOARD OF HEALTH will soon be prepared to furnish outfits containing the Schick Test to be used in the determination of the susceptibility or immunity of individuals to diphtheria. Within a very short period of time these outfits may be obtained at any of the three laboratories of the Board.

The first outfits obtained by the Board are of large size and can be furnished only to institutions or schools or to health officers or private physicians under special conditions when there have been a number of exposures. The containers now available contain enough diphtheria toxin for ten or twenty tests and it will possibly be some time before the Board will be prepared to supply packages containing single tests.

This test, which was first described by Schick of Vienna in 1913, indicates clearly those persons having specific immunity to diphtheria and who, consequently, do not require the administration of anti-toxin as a preventive after exposure.

The test consists of the injection of one-fiftieth of a minimal lethal dose of diphtheria toxin for a 250-gram guinea pig into the skin and observing the character of the skin reaction at the point of injection twenty-four to forty-eight hours later. According to Kolmer and Moshage, a certain percentage of persons will present a small area of redness and infiltration at the site of injection within twenty-four hours and such false reactions have frequently been misinterpreted for true toxin reactions. Hence, it is much better to read the reactions after forty-eight hours rather than after twenty-four hours.

The test is so delicate that it will indicate an immunity so slight that it will not protect against the disease. This slight reaction, of course, is to be ignored. The importance of the test is indicated when it is known that 80 per cent. of new born, 50 to 60 per cent. of children, and 90 per cent. of adults have sufficient natural immunity to protect them against diphtheria.

Illinois is the first state to place free Schick test outfits at the disposal of physicians and in-

stitutions. These outfits will be ready for distribution by February 20.

CONTAGIOUS DISEASE SITUATION IN ILLINOIS.

SUMMARY OF REPORTS TO STATE BOARD.

Reports of communicable diseases to the State Board of Health for the month of January indicate a marked falling off in the prevalence of diphtheria, an improvement in the smallpox situation, and quite a notable increase in scarlet fever cases.

Peoria and Rockford lead in prevalence of scarlet fever, 63 and 35 cases, respectively; East St. Louis and Springfield continue to have their troubles with diphtheria, but to a lesser extent than in December; Decatur and Clinton are claiming the "honors" for greatest number of cases of smallpox.

Following is a summary of the situation at the centers of population, which are chiefly affected:

Amboy: Smallpox rapidly subsiding, from 17 cases in November and 10 in December to 2 in January.

Batavia: Diphtheria present in December; no new cases reported in January.

Belleville: Diphtheria subsiding, from 29 cases in November and 12 in December to 6 in January.

Carlinville: Diphtheria outbreak in January, 5 cases. Scarlet fever increased from 2 cases in December to 6 in January.

Centralia: Diphtheria increased from 22 cases in November and 10 cases in December to 3 in January.

Clinton: Smallpox outbreak; 13 cases in January.

Danville: Smallpox, 8 new cases in January, 5 fewer than in December. Diphtheria stationary, 5 cases. Scarlet fever increase from 5 cases in December to 7 in January.

Decatur: Smallpox prevalent, 18 cases in December, 14 in January. Diphtheria stationary, 5 cases in each of last two months. Scarlet fever decreased from 24 in December to 7 in January.

Duquoin: Diphtheria epidemic here for several months now entirely subsided, but 10 cases reported in surrounding rural districts.

East St. Louis: Diphtheria epidemic subsiding from 96 cases in December to 49 in January.

Evanston: Fourteen cases of scarlet fever in January.

Foster Township, Marion County: Smallpox epidemic controlled, 33 cases in November, 31 in December and 2 in January.

Riverton: Smallpox situation improving in city, spreading in surrounding territory.

Peoria: Scarlet fever, prevalent for several months, continues to increase, from 53 cases in December to 63

cases in January. Also extend to suburban towns, viz., Averyville 11 cases in January; Bartonville 4 cases, and Peoria Heights 1 case.

Griggsville: Scarlet fever shows increase, from 4 in December to 9 in January. Chickenpox also appeared in January, 16 cases.

Joliet: Scarlet fever stationary, 12 cases in December, same number in January.

Litchfield: January, 10 cases of scarlet fever.

La Salle: Scarlet fever 11 cases, diphtheria 5.

Peru: Scarlet fever 8 cases.

La Grange: Scarlet fever increased from 3 cases in December to 7 in January.

Lacon: Smallpox situation improved; 18 cases in December, 4 in January.

Mt. Carmel: Diphtheria and scarlet fever epidemic previous two months abated in January, but 5 new cases of diphtheria and 6 of scarlet fever in latter month.

Oak Park: Scarlet fever increased from 4 cases in December to 8 in January.

Pecatonica: Little improvement in scarlet fever situation.

Rockford: Scarlet fever prevalent, 26 cases in December, 35 in January.

Rock Island: Smallpox increased from 7 cases in December to 9 new cases in January.

Springfield: Smallpox, scarlet fever, and diphtheria decreasing in prevalence; 25 new cases of smallpox in January against 69 in December; 30 new cases of diphtheria in January, 65 in December; 10 cases scarlet fever in January, 13 in December.

Fremont: Outbreak of scarlet fever, 6 cases in January.

Wilmington: Scarlet fever increased, from 5 cases in December to 8 in January.

FUMIGATION OF SCHOOLS USELESS.

STATE BOARD OF HEALTH RECOMMENDS SUBSTITUTION.

TELLS HOW TO REDUCE SCHOOL ROOM INFECTIONS.

Acting in accordance with the best of modern thought on the subject of disinfection, the Illinois State Board of Health announces abandonment of the long time requirement of fumigation (aerial disinfection) of school rooms following an outbreak of contagious diseases, and in lieu thereof recommends that infested schools shall hereafter be treated as follows: Careful removal of dust from walls and ledges by use of vacuum cleaner or moistened cloth; very thorough scrubbing of floors, employing an efficient disinfecting solution; very thorough washing of all other woodwork, especial attention being given to desks and seats occupied by and in the immediate vicinity of infected pupils; long con-

tinued airing of room and freest possible admission of sunlight. As an additional precaution in the presence of such diseases as scarlet fever, diphtheria, smallpox or infectious meningitis, the floor, woodwork, desks and seats may be sprayed with an approved disinfectant.

Books, pencils, pens and other similar articles handled by the infected child should be destroyed by burning prior to disinfection of the room.

Before a child, who has been ill with a contagious disease is permitted to return to school, the local health officer and the responsible officer of the school must satisfy themselves: (1) That the child has thoroughly recovered and period of infectiousness has passed. (2) That there are no other communicable illnesses in the family. (3) That the premises have been properly disinfected. (4) That the child has been given an efficient disinfecting bath. (5) That the child's clothes have been very thoroughly disinfected by boiling or by fumigation with an approved disinfectant in a properly sealed small room, preferably a clothes closet. (6) That opportunity for reinfection of clothing subsequent to disinfection was avoided.

The State Board of Health further recommends that school authorities shall make it a hard and fast rule that every window in a school building shall be widely opened following dismissal of classes and that they be kept open for so long a period as is practically never less than one hour. It also is recommended that school buildings be freely aired each morning before assembling of classes and during the recess period.

Attention is directed to the fact that the temperature of a school room never should exceed 68° Fahr. With a proper degree of moisture in the air, this temperature will be found most comfortable and will make for greater mental alertness and be of distinct advantage to the physical well being of the occupants of the room.

If practicable, school room windows should be kept open during occupancy of the room, even in winter. During the cold weather the open window should be screened with a cheesecloth screen. This will admit sufficient pure air, will break a draught and will keep the room at a temperature more conducive to health. Under such conditions there would be vastly less infectious illness chargeable to the school room.

"Everyone must eat his peck of dirt," is an aphorism of a by-gone day. To act upon it may pile many bushels of dirt upon your untimely coffin.

The pneumonia season is at hand. To escape it, don't hibernate—ventilate. And don't dissipate.

Chew your food until you can taste it. Thorough mastication is both a pleasing and important part of right eating.

Hygiene is Humanity's Hope.

Hygiene aims to make growth more perfect; life more vigorous; decay less rapid; death more remote.

Defective sanitation means defective civilization.

Where the sun does not go, the doctor does. (An old Italian proverb.)

A day in the park may save weeks in the hospital.

The dropping leaves of the plants in winter behind closed windows is a good sermon on bad air.

Sunshine and fresh air are conspirators for good health.

Cracking one's funny bone never causes one to laugh in one's sleeve.

It takes more nerve for a woman to open a telegram than it does for a man to open a jackpot.

Oh, yes, there is a vast difference between the savage and the civilized man, but it is never apparent to their wives until after breakfast.

Learn to Hold Thy Tongue. Five words cost Zecharias forty weeks silence.

In your conduct and conversation never swerve from your honest convictions.

When we ask God to direct our footsteps we are to move our feet.

Ah! what a tangled web we weave when first we practice to deceive.

You never lower yourself when you stoop to raise another.

The way to make the best of any situation is to make it better.

Gently to hear, kindly to judge.

Auto Sparks and Kicks

MY MOTOR GIRL

My motor girl, my motor girl, how she doth set my heart awhirl as, with a rush, she madly hicks along the overerowded pikes! Her silvery laughter is the horn she sounds pedestrians to warn that she is coming at full speed and that they'd better give her heed.

The wheels that whirl her on her way are made of human hearts, they say. She runs along right gracefully, no matter what the traffic be; and every heart along the road takes gladly on the loving load, and with a whiz and lively whirl obeys the slightest whim of her.

Her clutch is light, but oh how firm! Away from it no wight could squirm, however hard he'd strain or scrape in the mad effort to escape. Her gear is high, and ne'er a cop along the line would dare to stop her in the pace that she doth choose on lanes and streets and avenues.

Her motor lights are deeply blue as are the heavens' fairest hue, and danger flash to all who dare to brave their self-reliant stare. Her hood, ah, what a thing of grace, of feathers made and filmy lace, from whose dim depths the lights flash forth like the Aurora of the north!

Ah, motor girl—would thou wert mine! A day with thee would be divine—a life with thee could only be one mad joy ride of ecstasy! But sad my fate—and hence my groan—she never can be quite my own, for though my heart doth call her queen she's bust me buying gasoline!

—Horace Dodd Gastit, in *Harper's Weekly*.

HOW TO SPONGE BODY

Begin washing the car body by dipping the sponge well into the water, in order to pick up as much water as it will hold, and then begin at the top of the panels and dash the water obliquely and gently against the panels to loosen accumulations and cause them to drop off.

Another way is to squeeze the water out of the sponge at the top of the panels and thereby with the pressure of water carry away the mud or dirt. These are methods for the car that is washed immediately after use.

RATTLING DOORS.

"The doors of the body often develop a rattle which is difficult to trace and still more difficult to overcome. The installation of a couple of small rubber bumpers will often overcome this trouble. A piece of rubber from a lead pencil will quite often answer the purpose," says Manager Herron of the Autocape Top company.

TAR REMOVED BY SALT BUTTER.

When the car body becomes spotted with road tar a good substance to use for removing the spots is salt butter. This should be applied as soon as possible, for should the tar begin to harden, refinishing of the body may be found necessary.

HOW TO FROST GLASS.

Lamp frosting may be done very cheaply and conveniently by dipping the bulbs in a solution of 2 ounces sandarac, $\frac{1}{2}$ ounce mastic, 22 ounces ether and 16 ounces benzine. The mastic and the sandarac should be ground together and mixed with the solution of ether and benzine. The frosting is accomplished by dipping the lamps into the solution.

GAUGE PRESSURE THAT MAY MISLEAD

The pressure indicated by a gauge on an air pump while the pump is working usually is higher than the pressure in the tire, due to the loss through friction in the restricted air passages and the valves. The most accurate way is to get a pressure reading direct from the tire itself, thus eliminating possible causes of error.

OXYGEN TO REMOVE CARBON

Peroxide of hydrogen squirted into the intake manifold through a small hole near where it forks, and while the engine is running, will be carried into the cylinders and the excess of oxygen will quickly burn out the carbon deposits.—*Motor*.

SOAP IS SPEEDOMETER GEAR LUBRICANT.

Ordinary soap is used by some repairmen to lubricate speedometer driving gears. It acts as a lubricant and quiets them.

Society Proceedings

ADAMS COUNTY

The members of the Adams County Medical Society began the New Year right. On Monday evening, January 10, instead of the regular meeting, a banquet was given at the Hotel Quincy to the retiring officers. The attendance was not so large as was expected. On account of sickness, bad weather and miserable condition of the roads, many were kept away. However, those present did justice to the elaborate seven-course dinner that was served.

At the conclusion of the menu Dr. H. P. Beirne, the toastmaster, introduced the first speaker on the program, Dr. R. J. Christie, who responded to the toast "Some Medical Phrases." The doctor spoke especially about those men who have been prominent in Quincy's medical history. He also referred to the enthusiastic spirit which permeated the Clinical Surgeons' Congress at the meeting held in Boston during the past fall; to the statement made at the Western Surgeons' Congress, that carcinoma of the breast is decreasing, and benign tumors are on the increase. The next speaker was Dr. Melinda Germann, who responded to the toast "Women in Medicine." Her paper was very well received and gave us a good idea of what women have done and are doing in the field of medicine. She was followed by the president, Dr. Dan Stine, who read extracts from a medical book published in 1797. Many of the theories advanced at that time are in use at the present day.

Dr. G. E. Whitlock, the retiring president, was to have talked on "History of Medicine," but was unable to be present on account of illness. The secretary was ordered to send him a letter of sympathy and regret at his inability to be with us on this occasion.

After a short business session, the pleasant evening came to a close. Each one expressed the wish that this be made an annual banquet, to be held instead of January meeting, and we trust that the second Monday in January, 1917, will be thus observed.

ELIZABETH B. BALL,

Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

JOINT MEETING OF THE CHICAGO MEDICAL AND
UROLOGICAL SOCIETIES

Regular Meeting, January 5, 1916

SYMPOSIUM OF GONORRHEA

"Bacteriology," C. C. Warden; "Modern Vaccine Treatment," Louis E. Schmidt; "Complement Fixation Test," V. D. Lespinasse; "Complications of Gonorrhea," Robert H. Herbst; "Vulvo-Vaginitis in Children," Isaac A. Abt; "Gonorrhea and Prostitution," L. W. Bremerman; "Gonorrhea and Marriage," Irvin S. Koll.

Regular Meeting, January 12, 1916

1. "Surgical Problems Considered from the Standpoint of Morbidity," Edward H. Ochsner. Discussion, Lawrence Ryan.

2. "The Prevailing Epidemic of So-Called 'La Grippe':" a. Etiology, F. H. Harms. b. Bacteriology, Adolph Gehrmann. c. Pathology, David J. Davis. d. Vaccine treatment, Joseph F. Biehn. e. Management of complications, Joseph C. Beck. Discussion: Charles Spencer Williamson, Robert H. Babcock and H. G. Ohls.

Regular Meeting, January 19, 1916

1. "Hydrotherapy in America," illustrated by moving pictures, W. G. Russell, Hotel Chamberlain, Fortress Monroe, Va.

2. "Hydrotherapy in Cardio-Vascular Disease," J. H. Kellogg, Battle Creek Sanitarium, Battle Creek, Mich.

Regular Meeting, January 26, 1916

1. "A Case of Beriberi Successfully Treated with Three Doses of a Vitamine-Containing Extract," Bayard Holmes, Sr., and Julius Retinger, Ph. D. Discussion, Maxmilian Herzog.

2. "Diagnosis, Prognosis and Treatment in Nephritis," Martin Fischer, University of Cincinnati, Cincinnati, Ohio. Discussion: Wilbur Post, S. R. Slaymaker and Ralph Webster.

3. "Present Status of the Operation of Decortication of the Kidney," Filipp Kreissl.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

(Abstract.)

Regular meeting, held May 24, 1915, with the president, Dr. George W. Root, in the chair.

DEMONSTRATION OF FRONTAL SINUS CASES OPERATED INTRANASALLY: CASES OF LATERAL SINUS THROMBOSIS.

Dr. R. H. Good wished to demonstrate one point especially regarding frontal sinusitis, namely, that cases with pus breaking through the bony walls, either on the forehead or in the orbit, heretofore having been considered as cases that should be operated extranasally, will get well when operated intranasally, and demonstrated this point to the members by the exhibition of several patients. The first patient came to the speaker about two years ago with an acute frontal sinusitis, with swelling just above the eyebrow near the median line. Everything in the line of medical treatment was tried, without relief. The middle turbinate was removed, which seemed beneficial at the time. His experience with removal of the middle turbinate in cases of acute frontal sinusitis, however, has not been very satisfactory. He tried frequent suction, after cocaine and adrenalin sprays, but the patient got gradually worse, and was incapacitated. Pus had broken through the anterior sinus wall. Operation was performed intranasally, and drainage established, with immediate relief of pain and disappearance of the swelling.

In Case 2 there was no question about there being pus underneath the periosteum, with marked swelling of upper lid. The intranasal operation was performed, and the pain disappeared altogether.

In the third case the pus had also broken through the bony wall of the sinus. When first seen, the left eye was pushed partly out of the socket. The tissues above the eye were so swollen that it was impossible to open the eyelids. The patient was confined to bed. As this is not usually the case, it made the speaker think of a very serious condition, and immediate operation was advised. He did the intranasal operation, and got very nice drainage. The patient did not get well, however, but continued to have subnormal temperatures, occasional vomiting, inability to concentrate the mind, and could not feed himself. The diagnosis was made of extradural abscess. Operation showed perforation from the sinus into the orbit, but the posterior wall was absolutely solid. The speaker then opened up the posterior wall, removed at least a dram of pus. The point he wished to bring out was that the pus did not go through the posterior wall of the sinus, but came into the orbit, and then went back between the periosteum and bony orbit, through the posterior orbit, and then came forward under the dura. That was the only way in which he could explain it being in the extradural space. Had it not been for the extradural abscess, this patient would have been cured by the intranasal operation.

The speaker was very proud of the fourth patient, who had had a frontal sinusitis for seven months, with a fistula opening just above the inner canthus of the eye. In twenty-four hours after operation she had absolutely no discharge from the fistula, and at the present time it is still closed—a year and a half after operation, so that a sinus draining from the frontal sinus is not a contraindication to the intranasal operation.

Case 5. This patient also developed an abscess just above the inner canthus, which broke open. An intranasal operation was performed with some difficulty, which was followed by a good result.

Case 6 was a lateral sinus case. The patient developed an acute rhinitis, and was obliged to leave his work on account of chills. Later developed an acute otitis media in both ears. Was sick for four days before rupture of the membranes. Treated for about a week with the usual treatment of a general practitioner, but grew worse continually. Tongue coated; appetite poor; temperature slightly elevated at times. Dr. Good was called at the end of a week. He could not elicit any tenderness over either mastoid; there was no tenderness along the sinus. Discharge most profuse from left side. The patient was put in the hospital, and the temperature taken every hour—a point which he finds very valuable in making a diagnosis of lateral sinus thrombosis. This case was operated after the positive diagnosis of lateral sinus thrombosis was made two days after entering hospital, and recovery followed. In operating these

cases Dr. Good has noticed that in every case where he has simply ligated the internal jugular vein it ruptures in three to five days after it is tied. He believes it is wise to separate the vein and sew the upper end into the wound, so that it can be irrigated through and through. This patient had a leucocytosis of 18,000; the polys were 85 per cent. Autogenous vaccines were given throughout the entire course of treatment in the hospital.

Dr. Joseph C. Beck asked what organism, to which Dr. Good replied the staphylococcus aureus.

The seventh case was also a lateral sinus thrombosis, and in this case you could see the mastoid region bulging. Was treated in a dispensary for five or six weeks, but not operated, because there was no discharge from the ear. No disturbance with hearing. The infection did not go through the jugular bulb because the sinus was perforated in the mastoid region. In addition, there was an extradural abscess found on operation. When the mastoid was opened the pus came out of the cranial cavity with pulsations. In this case there was no perceptible systemic infection, and the patient recovered nicely, and has perfect hearing.

Case 8. This patient was a nurse, who had an acute tonsillitis. Four days later developed an acute otitis media, with tenderness over mastoid. Up to this time had been under the care of a general surgeon. When Dr. Good was called he did a paracentesis, and there followed a profuse discharge from the ear—about a cupful in two hours' time. Four days later it was necessary to perform a mastoid operation. The lateral sinus was found uncovered, the bone necrosed over the sinus over a small area, but only a complete simple mastoid was performed. Within a week she had distinct symptoms of lateral sinus thrombosis. The lateral sinus was operated on, the internal jugular ligated. There was no pneumonia at any time, and yet she had multiple abscesses all over the body, about fifty. Patient recovered in six weeks after last operation.

GROWTH IN THE LEFT CHOANA.

Dr. Norval H. Pierce showed a patient who had complained two months ago of nasal stoppage on the left side. There was no pain of any consequence. The left choana, on examination, was found deformed by a growth which apparently sprang from the immediate vicinity of the posterior end of the inferior turbinated body. When first seen there was no ulceration, but an induration in the region approximately close to the inferior and middle turbinated body, which could be very easily seen to travel upwards toward the upper portion of the Eustachian tube. The second time he was seen, some days later, there was a distinct increase in this infiltration, and had a slough on its upper portion. The turbinated bodies were then so amalgamated in the left choana that he could hardly distinguish between the posterior end of the septum and the middle and inferior turbinated bodies. The growth apparently was very rapid. A piece about the size of a finger-nail was

snared off for pathological examination, and showed nothing but granulation tissue. Toward the circumference of these pieces of tissue he found something that was rather suspicious of epithelial growth. The pathologist was not sure whether it was epithelium or endothelium, but could see nothing that he could positively state to be malignant in its character. The man had no history of syphilis, but in order to insure the absence of this disease he was put on anti-syphilitic treatment, with absolutely no effect on the growth. On examination of the post-nasal space on the evening of the meeting, when the case was presented, this infiltration was found to have spread rapidly over the posterior wall of the posterior pharyngeal space as a large ulceration, with heaped-up edges. This is the second case Dr. Pierce has seen of this kind, and they all go about the same way.

Dr. Pierce then showed x-rays of the case of a child who had been referred to the clinic by the school officials for the removal of tonsils and adenoids. On examination, the tonsils were found to be healthy, and there were no adenoids. However, the child could not breathe properly through the nose. There was considerable swelling and discharge of pus on the right side. A foreign body could not be seen by anterior or posterior rhinoscopy, but the x-ray showed a large safety-pin somewhere in the posterior portion of the nasal cavity.

CASE OF NASAL DEFORMITY FROM SYPHILIS, WITH SUGGESTIONS AS TO REMEDYING THE DEFECT.

Dr. Pierce said the deformity had resulted from a syphilitic process which had healed up. In this case the Wassermann was negative. The idea, however, was to improve the man's appearance. Dr. Pierce's plan was to take the middle finger of the left hand, split it up and sew the split finger into the cavity. This is not the usual technic, but he thought it might be successful. He would like to have the members make any suggestions regarding this case.

The next case Dr. Pierce showed was one of frontal ethmoidal disease, operated on by the Killian method, with accentuation of an important point, namely, that in these cases the whole temporal region is usually very much swollen. Such was present in this case. The patient was shaved very thoroughly before the speaker saw her on the table, and therefore could not tell where the eyebrow was. Since operation, the eyebrow has sprung out very beautifully, over an inch above the incision. This displacement was the result of the great swelling present. The point is very important that in these enormous swellings it must be that the attachment of the orbicularis and the occipitalis has become entirely eaten away from the bone; the muscle contracts and throws the soft parts upwards. He has never seen this fact brought out, however, and exhibited the case because of its interest.

Dr. Pierce's next case was one of acute frontal abscess, with violent pain, which continued for many

weeks. The patient was sick for five weeks. In operating, he went in through the ethmoid, up into the frontals. The pain was greatly relieved by this intranasal operation.

DISCUSSION.

Dr. J. Holinger asked if it was an especially deep frontal sinus, as shown by the x-ray, to which Dr. Pierce replied that he did not think it was especially deep and he did not think there was anything special about the x-ray other than it showed that the sinus was diseased.

CASE OF PARALYSIS OF VOCAL CORDS OF DOUBTFUL ORIGIN, PROBABLY LUES.

Dr. Charles H. Long presented this case. The interesting point is its cause, whether tubercular or luetic. The x-ray plates were exhibited, which showed the external laryngeal on each side, demonstrating the difference. The patient is fifty-five years old, and consulted the speaker last January on account of the loss of his voice. Otherwise in good health. In 1907 he was treated for a condition that seemed to be tuberculosis of the lungs by Dr. Walter Barnes. At this time there were also epileptiform fits. When he came under Dr. Long's care he said these fits extended over eighteen months. The hemorrhages were not like ordinary lung hemorrhages. They came on after doing some strenuous work, and were only three or four in number. Dr. Barnes told Dr. Long over the telephone that the tuberculin test and examination of the sputum had both been negative, and that the patient recovered under antisyphilitic treatment. Dr. Barnes was of the opinion that it was a case of lues. The man remained well until 1912, when he had an attack of sciatica, which laid him up for four weeks. One day last November, when he got up, he could not talk, which condition continued until he consulted Dr. Long. A tuberculin test at that time was negative. He was put on antisyphilitic treatment, and a Wassermann was made, which showed 25 per cent positive. He was given salvarsan. In this case it is necessary to consider the possibility of lung syphilis. The diagnosis in this case is not by any means easy. We know a positive Wassermann may be found in a tuberculous individual, without evidence of syphilis being present. We know that syphilis is one of the predisposing factors in tuberculosis. This patient may have both syphilis and tuberculosis. Physical examination of the left apex posteriorly shows a mildly active lung lesion—undoubtedly tubercular. No evidence of active trouble in right lung; no râles present, which could be accounted for by the fibroid condition of the affected portion of the right lung.

Syphilis of the lung is comparatively rare. This man's condition is much more suggestive of tuberculosis. He has had no temperature; pulse normal; during last winter lost about fifteen pounds in weight; no cough; no night sweats; none of the symptoms of tuberculosis. He has had salvarsan, and is now taking forty grains, t. i. d., of K. I. He has had injections, and says that he is gaining about a pound a week. This diagnosis made by Dr. Long was syphilis, partly on account of the treatment by Dr. Barnes and

the improvement that has taken place under anti-syphilitic treatment. The voice is improving.

CASE OF LARYNGEAL TUBERCULOSIS.

Dr. Long's second patient was a man, 39 years of age, who has had sore throat almost all his life—up to about four years ago. He was free from it until last summer, when it again became sore. He consulted a physician, who said the tonsils should be removed. This operation was performed successfully in November, and about three or four weeks after that he commenced being hoarse, which condition has persisted ever since, although fluctuating somewhat. Otherwise is perfectly well. No indication of lung trouble. Father died at 36 with some lung trouble. Was sick for three or four months, and patient thought it was pneumonia. Patient has had an ulceration of the mouth, several ulcers of the tongue, and ulcers of the pharynx.

These were examined microscopically, and the report of the pathologist was necrosis with cell formation. Bacteriological examination showed pneumococcus and streptococcus formations. Epithelial cells found. Wassermann test negative. Tuberculin test positive. On the strength of the positive tuberculin test, the laboratory report, and there being no improvement from treatment, as well as the voice still remaining hoarse, and the recent discovery of the lymphatic nodes, one on each side, Dr. Long was led to the belief that the condition was one of tuberculosis.

CASE OF DOUBLE CEREBELLAR ABSCESS, WITH RECOVERY FOLLOWING OPERATION.

Dr. Burton Haseltine was inclined to believe that there has been no report in the literature of a bilateral cerebellar abscess with recovery. In the case presented the abscess followed an acute infection of the right middle ear, in a boy, eighteen years old, who enjoyed good health previous to the time of getting a grippal cold, which was accompanied by considerable purulent rhinitis, rather quickly followed by an acute suppurative inflammation of the right middle ear. This ear complication was untreated. There was spontaneous rupture of the drum, with very free purulent discharge for about three weeks. There was considerable swelling of the external ear, in front, upward and back of the auricle, suggesting a mastoid condition. Five or six weeks after the beginning of the ear trouble, when he began to have vertigo and difficulty with walking, he was first seen by a physician. There was also some vomiting, and the usual symptoms suggestive of cerebellar trouble. Dr. Haseltine first saw the boy on January 26th. He was unable to walk, and had the appearance of sepsis, combined with a subnormal temperature of about two degrees. Pupils widely dilated; equal on both sides. No reaction to light. Moderate amount of optic neuritis—equal on both sides. Mental condition perfectly normal, except that there was some delay. Coordination about the same on both sides. Could not stand without falling, and at that time fell to

the right. Had had several attacks of spontaneous vomiting. Nystagmus on looking either to right or left side—rather marked, but not on looking straight ahead at this time. Dr. Haseltine made a clinical diagnosis of abscess of the right cerebellum, and advised that the patient be brought to Chicago. When he arrived here he was very much better. Dr. Grinker was called in consultation, and he made a very extensive examination. Blood examination showed only 9,000 white count; red cells about normal; lymphocytosis both absolute and relative to a mild degree. Temperature came up to normal. Kept in hospital seven days under observation. Tuberculin test negative. Temperature about normal. No particular change in symptoms. On seventh day he developed labyrinth symptoms for the first time, with distinct rotary nystagmus. Right labyrinth did not respond to caloric test. Hearing apparently normal in right ear. Normal reaction to caloric test on left side. Mastoid showed absolutely no symptoms, except a slight difference in transillumination, the right being a little darker. There was no pain. Middle ear normal in appearance. Drumhead had ruptured spontaneously. Discharge had ceased. When labyrinth symptoms developed, a mastoid operation was performed, the dura exposed, and mastoid cleaned out. The cells were dark, but not broken down. Culture showed the staphylococcus aureus. The labyrinth was exposed, but the upper nodules were not opened. Forty-eight hours later the temperature was normal; rotary nystagmus had diminished; pupil dilatation decidedly less; and all the symptoms better. Six or seven days following this the cerebellar symptoms returned, and on the eighth day the cerebellum was opened. This patient had some bilateral symptoms. The right sphenoidal bone was explored, and nothing found. An opening over the right cerebellum released a large abscess. Examination showed a practically pure culture of the yellow staphylococcus. This operation was followed by immediate improvement, and after seven weeks, with the usual drainage, the boy was allowed to leave the hospital, although there was exposed, but the upper nodules were not opened. temperature suddenly went up to 104°, and the symptoms returned. He was taken back to the hospital, the canal dilated, and a probe inserted to the bottom. At the depth of four and one-quarter inches there was some bad-looking tissue, and a small amount of pus. An x-ray picture was then taken with the instrument in the wound, and Dr. Haseltine was surprised to find the end of the probe was over in the opposite hemisphere. The left-sided abscess was then drained through the right sided opening by means of silver tubes, which were gradually cut off as the cavity became smaller. At the last rubber tubes were used for drainage, and then gauze. (NOTE—As we go to press the patient is entirely well, the wound has closed and he is able to go about his usual duties.)

DISCUSSION.

Dr. Julius Grinker said that on his first examination of the patient he found evidences of right-sided cerebellar disease. As there was a history of infection preceding the

developing of symptoms, earache and purulent rhinitis, with discharge, and some mastoid involvement, combined with a history of subnormal temperature and leucocytosis, he did not think there was any difficulty in diagnosing the case as cerebellar abscess. The boy was apathetic, slow in speech, thought and locomotion. He had bilateral cerebellar ataxia, more marked on right side; also nystagmus and double optic neuritis—not well marked, but sufficiently so to be recognized as such. Instead of the classical slow pulse there was rather a small and rapid pulse. Temperature subnormal rather than elevated. The speaker made the diagnosis of cerebellar abscess independently of Dr. Haseltine. It was questionable from the symptoms whether immediate operation on the cerebellum was justified without previous exploration of the intervening territory. The history of mastoid trouble could not be disregarded and he agreed with Dr. Haseltine that it would be best to explore the mastoid first. Then came the question as to the advisability of going into the cerebellum after the mastoid operation. Dr. Haseltine mentioned the fact that there were symptoms which did not indicate exactly a unilateral abscess, namely, exaggerated tendon reflexes on the right side, which did not exactly fit in the picture of left-sided cerebellar disease. Also, there was a speech disturbance suggestive of a mild type of aphasia. It is well known that aphasia is not produced by right-sided trouble. These symptoms made the speaker hesitate in advising immediate cerebellum operation, and he also wished to ascertain the absence of a meningitis serosa interna, which occasionally occurs in connection with pachymeningitis, following mastoid disease, usually in the vicinity of a pus depot. Lumbar puncture was made and the boy was somewhat relieved after the withdrawal of a moderate amount of fluid, which, though under great pressure, on examination proved to be negative. The symptoms continued, however, and Dr. Grinker advised exploration of the temporo-sphenoid lobe adjoining the territory of the right mastoid and in the absence of a depot of infection proceed to the cerebellum. This was undertaken. The temporo-sphenoidal lobe was found free from pus and the cerebellum entered at once and a large right-sided abscess discovered. At this time Dr. Grinker had no idea that there was also a left-sided abscess, and it was not until Dr. Haseltine introduced the probe into the cavity and had the x-ray taken that this bilateral condition was discovered. The result, the speaker thought, was brilliant. He did not remember having ever seen a bilateral cerebellar abscess, certainly not one that recovered.

Another interesting feature in this case was the frontal headache, which pointed to the frontal lobe, but is rarely found in cerebellar disease, abscess or tumor. The explanation is that the fronto-pontine cerebellar tract has its origin in the frontal lobe.

He thought the surgical work in the case was cleverly executed by Dr. Haseltine and neither he nor Dr. Haseltine regretted that they had not proceeded faster.

CASE OF RECOVERY FROM MARKED HYDRORRHEA NASALIS OF HYSTERICAL ORIGIN.

Dr. Joseph C. Beck presented a patient to the Society for the second time. This young lady when first shown to the members had a marked hydrorrhoea nasalis, and the diagnosis of a hysterical condition was made by Dr. Grinker and Dr. Beck independently. Some of the members thought it a more serious condition. Nevertheless, the patient was sent home shortly after being at the meeting, and has entirely recovered since that time. Previous to that she had had about fifteen operations on the sinuses and throat. She had been promised a course in the training school

for nurses if she recovered, which study she is at present pursuing.

NECROSIS OF NOSE FOLLOWING REMOVAL OF TEAR DUCT.

Dr. Beck's second case was that of a man who had had a tear duct removed on account of a swelling on the right side of the face. Following operation the nose and right side of the face became very much swollen and necrosis developed on the side of the nose. The diagnosis of lues was made. Wassermann faintly plus. Was treated vigorously with a number of neosalvarsan injections, large doses of iodides and mercury, with absolutely no result. At one time it was thought the condition might be tuberculous, and he received three treatments of deep x-ray therapy by the Coolidge tube, following which he was given salvarsan intravenously instead of neosalvarsan. The nose cleared up after this, and the speaker thought this proved that salvarsan and not neosalvarsan was the specific in this case. But that was only temporary. Then the speaker consulted Dr. Ormsby. There was absolutely no history of lues, and Dr. Ormsby decided that it was a case of chronic septic infection of the nose, and should receive vaccines and x-ray treatments. As he had received vaccines before, without effect, he was given eight deep x-ray treatments with the Coolidge tube, and the improvement was marvelous. The case was interesting in that the whole trouble arose from a chronic dacryocystitis.

CASE OF LABYRINTH DISEASE: OPERATION: RECOVERY.

The third case exhibited by Dr. Beck was a young man who gave a history of having had measles as a child, and chronic bilateral suppurative otitis media ten years before, which was operated. He was then considered deaf and was a pupil in Miss MacGowan's school. Dr. Beck had operated him, doing a bilateral radical mastoid, and had then lost track of him, until his return a few weeks ago with severe headache on the right side. Suppuration from the region of the promontory was discovered, and a labyrinth operation performed. Both ears were negative to all tests as to a functioning labyrinth. He was absolutely deaf. He has fair speech, and is a splendid lip reader. In cleaning out the labyrinth Dr. Beck used only the bur. He took out the entire labyrinth, saving the facial bony canal, with the happy result that the ear is dry, there is no facial paralysis, and the headaches are entirely subsiding.

TRIFACIAL NEURALGIA.

Dr. Beck showed a man who had had a radical frontal sinus operation, but complains of very marked pain. He had been promised relief of the trifacial neuralgia by injections of the Gasserian ganglion. The condition was on one side, and not classical of the condition, but the speaker felt that as all other things had been done except injection of the nerves, this might afford relief. He had already treated three

patients by such injections, and he felt that the treatment certainly offers a splendid opportunity for relief of such severe pain as these cases present.

DISCUSSION ON DR. PIERCE'S CASES.

Dr. J. Holinger referred to a plastic operation of one wing of the nose in reference to both Dr. Pierce's and Dr. Beck's cases. The tissues of the face are very elastic. To cover the defect in his case Dr. Holinger made two slightly divergent incisions from the end of the defect backwards over the cheek and loosened a large flap between the incisions; he then stitched the bleeding base of the flap to the edge of the bony aperture of the nose. That gave sufficient loose skin tissue to cover the whole defect with a loose flap, which was well supplied with blood. There was absolutely no tension on the back of the nose, because the tension was at the edge of the pyriform aperture. The flap fell into place automatically. The cosmetic result was very good.

Dr. Joseph C. Beck had seen Dr. Pierce's case and it looked to him like a sarcomatous condition of the nose. It might be an epithelioma or endothelioma, although these conditions certainly differ, at least microscopically. Regarding the case in which Dr. Pierce was going to do a plastic and also his own case, he did not know of anything better than the operation Dr. Pierce suggested doing. He thought the loose flap would be a poor procedure. One of the necessary things is the preservation of the nasal side of the orbit and any operation which would loosen up tissues around the orbit would defeat the purpose.

Dr. Pierce, in closing, said he had very little faith in flaps derived from the side of the face bridging over such a large defect as that present in the case he had shown. The stitches pull out and the defect is just about as large after the attempt as before.

DISCUSSION ON DR. HASELTINE'S CASE.

Dr. Norval H. Pierce asked whether the labyrinth had been tested out since operation, especially the static apparatus.

Dr. Alva Sowers, speaking for Dr. Haseltine, said that the labyrinth had been tested with the caloric and rotary tests about three weeks ago and found to be still active. Another point he wished to mention was that no anesthetic was used during any of the operations. The patient received one-sixth grain of morphine preliminary to the first operation.

Dr. Pierce thought it was important to know whether the labyrinth responded to the caloric test before the abscess was drained. He had understood Dr. Haseltine to say the labyrinth was normal, both for hearing and the caloric test.

Dr. Sowers replied that the static labyrinth was negative; the acoustic labyrinth was normal. He could hear perfectly previous to operation. There seems to have been no change in the labyrinth except the rotary nystagmus.

Dr. Pierce asked how the auditory apparatus was tested, to which Dr. Sowers replied that they used a stethoscope, pinching off first one side and then the other, and whispering through it, so that there was no chance of malingering.

Dr. Grinker said he thought this a very splendid test.

Dr. Pierce asked if the noise apparatus was used, to which Dr. Sowers replied that it was not.

Dr. Pierce said he could hardly think the man could hear so well with such a destruction.

Dr. George W. Boot said he would like to know the origin of the abscess. Such abscesses are usually situated close to the temporal bone. This one was quite a distance from it. Was it by direct extension from the mastoid or was it a metastatic process?

Dr. Grinker, replying to Dr. Boot's question, thought it was a metastasis, as all the intervening brain territory was found free from disease.

Dr. Beck asked if Dr. Grinker made a test of pronation and supination or the diadokokinesis.

Dr. Grinker said he did, but this was inconclusive for localization.

DISCUSSION ON DR. BECK'S CASES.

Dr. Julius Grinker wanted to speak about the case of trifacial neuralgia shown by Dr. Beck. This man had been under the speaker's care and he had put him down as a psychasthenic, with the habitual or psychic sort of pain. He feared the results of injection of the Gasserian would prove disappointing. The speaker is very loath to resort to this method unless all peripheral injections have been unsuccessful, for the reason that there is always the real danger of causing corneal ulceration when the Gasserian ganglion injection is successful. Regarding the patient who had had hydrophobia nasalis of hysterical origin he remembered the case very well. He thought the remarks made in her presence, when she was first presented, had done a great deal for the girl by virtue of the psycho-therapeutic treatment unconsciously practiced. Time and again he has seen patients made worse with each consultation, because of the poison that was instilled into their minds as to the existence of organic disease. When we know that patients have no organic disease we should tell them so.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of Oct. 18, 1915, Continued.

DISCUSSION OF DR. WORTHINGTON'S CASE.

DISCUSSION.

Dr. Tydings had had no experience with guaiacol, but that there had been marked improvement in one case under his observation of pyorrhea alveolaris with episcleritis by the use of a proprietary preparation known as alcrestiopecae.

Dr. Worthington had examined the patient's teeth and had referred her to her dentist to ascertain if she had any signs of pyorrhea, but he had reported back that he found nothing of that nature.

Dr. Murray referred to the case of a man taking large doses of digitalis who developed purple vision. His vision became normal upon the cessation of the administration of digitalis, but upon resuming the digitalis the vision again became purple. Yellow vision caused by the use of santonin is not uncommon, however.

Dr. Tydings reported the case of a young man, 20 years of age, whose father had died at the age of 48 with kidney trouble, the mother living and in good health. Two brothers and one sister are living. There is no disease history. On the twenty-eighth of July this patient came to the speaker's clinic blind in the left eye. There was slight perception, but no vision. Examination showed neuro-retinitis, choroiditis, two patches and what seemed to be a sarcomatous growth in the superior temporal quadrant of the left eye. He was advised to enucleate. The speaker said he would have recommended enucleation if the growth had stood alone. There is considerable doubt as to the etiology. The urinary findings were negative; there was no appearance of inherited lues; the Wassermann test was negative. There was only a feeble response to the tuberculin test, there being a rise of one and a half degrees of temperature under the test. The nasal septum was deflected to the left. The left sphenoid was not healthy. The walls were denuded and the bone was exposed. The septum was straightened and an opening was made up to the sphenoidal sinus, and the patient was put on active specific medication and tuberculin injections. There has been good progress; there is now 20/160 vision in this eye, and the other is perfectly normal.

He believed this condition to be of tubercular origin, although he was not sure.

Dr. W. A. Fisher, discussing Dr. Tyding's case, had seen this same patient about a month ago and that the condition then was no more interesting than now, because there has been such marked improvement in the condition of the eye since he first saw him.

The condition tonight looks much like many cases of choroiditis. There is a pigmented choroidal spot just below the fovea centralis above the fovea and a little toward the temporal side, there is an atrophic spot in the choroid. There is no swelling of the spot, but when he saw him with Dr. Tydings August 2, 1915, this white spot was ten

times larger than it is tonight and elevated from the normal part of the fundus about four diopters. It presented at that time a picture of a sarcoma of the choroid and reminded him of a picture he had for teaching that is copied from Frost's Atlas. He did not have any vision at that time and he believed it to be a sarcoma.

Dr. H. S. Gradle said that in this case at one time there was probably some interference with the circulation of this area, with subretinal or subchoroidal hemorrhages and a collection of serum. An autolytic process involving the retina and the choroid probably followed. Now the condition is one of atrophic retina, with the sclera showing through. There is still some swelling of the surrounding area. We cannot tell whether the central area is swollen, but elsewhere there is edema. The condition now is what might be designated as a hole in the retina and choroid, due to autolysis from the subretinal collection of serum.

Dr. Michael Goldenburg said that in view of so much destruction of the retina and choroid and so little pigment epithelium or choroidal pigment being present, one would be led to think of what von Michel said, that where there is great destruction of tissue and with little or no pigmentation and a few changes in the vessel walls, the condition can be safely diagnosed as tubercular. In view of the fact that Dr. Tyding's injection of tuberculin was followed by a rise of one and a half degrees, this would seem to be good grounds for regarding the condition as tubercular.

A DOUBLE WEST OPERATION.

Dr. John A. Pratt, of Aurora: While in Seattle, last July, I demonstrated the West operation on the patient for a number of physicians. The patient's brother, who is a physician, operated on the other side the following day. The patient received four or five treatments, and then was allowed to return to his home on the farm about one hundred and fifty miles distant.

The results of the operation were seemingly good, so good that three weeks ago the patient was sent to Dr. Fisher, of Chicago, for a cataract operation.

Dr. Fisher found on microscopical examination that pus was present, and hearing from the patient that I had performed the West operation on him sent him out to Aurora to have him cleaned up. After three weeks' treatment the eyes seem clean and the tears are carried off, but upon microscopical examination pus is still present in the secretions of the eyes. The question is whether to send this patient back to have the sac trouble cleaned up, if possible, or destroy the sac and perform the operation for cataract. The patient has only one eye and is thirty-five years old.

PAUL GUILFORD, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held November 15, 1915, with the President, Dr. Richard J. Tivnen, in the Chair.

TREATMENT OF OBSTRUCTION OF THE LACHRYMAL PASSAGES, INCLUDING DESTRUCTION OF THE SAC WITH TRICHLORACETIC ACID.

Dr. Harold Gifford, Omaha, Neb., first referred to his previous contribution on this subject, then described a number of points in lachrymal technic. Formerly, in destroying the sac, he generally put the patient to sleep and used the Paquelin cautery to

destroy the lining, but he had some fear that if he used the cautery vigorously enough to be sure he destroyed all the sac he might cause a little necrosis of the bone and have future trouble.

Many years ago the sac was destroyed with chlorid of zinc placed on a piece of cotton and stuffed down into the sac, waiting for nature to do the rest. Seemingly good results were obtained by that method. However, it was inaccurate and painful, so that he had now adopted the method of destroying the sac with trichloroacetic acid.

DISCUSSION.

Dr. H. W. Woodruff said he had used the method of Dr. Gifford and thought he was safe in recommending it in cases of acute exacerbations of chronic dacryocystitis in which the surrounding tissues were greatly inflamed and in which it was almost impossible to extirpate the sac. Sometimes one could not tell where the sac began or ended. In such cases he thought the Gifford operation was ideal, because it was simple and effective. He was not, however, quite prepared to give up the extirpation of the sac in cases of chronic purulent dacryocystitis in which it was very essential to get rid of the pus sac previous to doing an operation for cataract, and he thought he would still adhere to the method of extirpating the sac.

As to the treatment of dacryocystitis in infants, he agreed with Dr. Gifford, except that he had never adopted the external incision in probing the nasal duct by that method. He had had a number of cases that were relieved and cured by simply syringing the sac and duct. Putting the child under the influence of ethyl chlorid and inserting the point of a syringe in the punctum and with one squirt the fluid in the syringe seems to go with a gush through into the nose and that was the end of the dacryocystitis.

Dr. J. Sheldon Clark, Freeport, Ill., expressed himself as much interested in seeing Dr. Gifford perform the operation on a tear sac earlier in the day at the clinic held at the Eye and Ear Infirmary. While the technic was simple, yet the operation should be done with care.

It was his opinion that the technic as given would be suitable where one had for his object the destruction of the sac. But in this as in the Meller excision procedure one does not have a functioning ear apparatus left.

The Toti operation was mentioned by the essayist and the point made that the opening made from the outside into the nose was prone to close off, due to the deposit of fibrin around the bony opening. Dr. Clark was of the opinion that the intranasal route still offers the best way of attacking the floor of the lachrymal fossa in all cases where one desires a functioning tear apparatus following the operation, and that this is the best way of securing drainage. By the intranasal route one can secure a good opening with clean-cut margins of muco-periosteum, and when this is done and the after-treatment persisted in for a time, then a closure does not take place.

Like Dr. Woodruff, in children and especially in young babies, he had been able to cure cases of blennorrhea with a simple syringing of the lachrymal passages.

Dr. J. A. Pratt of Aurora thought that oculists should tend towards preservation in these cases as much as possible and he thought that was the trend of Dr. Gifford's remarks.

In reference to anesthesia in passing the probe, since he had been doing the West operation he had packed the lateral wall of the nose before passing the probe. This would deaden the bone and relieve the patient of much pain. With the West operation he had had some successes and some failures and it seemed to him that a great deal depended upon the patients themselves. In cases of phlegmon the intranasal operations gave direct drainage into the nose. Free and good drainage tended possibly towards more rapid healing, so that one could do more conservative operations.

Dr. William A. Mann asked Dr. Gifford whether in these simple cases of obstruction he had ever used the galvanic current. Personally the speaker found it a great advantage in passing the probe to connect it with a negative pole and applying from ten to fifteen milliamperes. The probe would pass more easily than it otherwise would.

Dr. Oliver Tydings had tried the various methods, but was heartily in favor of using the probe where there was a tear sac that one could pass it through. He had had some experience along the line mentioned by Dr. Mann. In very many of the cases as long as the stricture was fibrous tissue and not bone, electrolysis would work very well. One had practically the same condition to contend with that he had in a urethral stricture. He had bulb pointed bougies made for this purpose and he had used them, but unfortunately in many of the cases we had bone to contend with rather than fibrous tissue.

Dr. Oscar Dodd was glad he had seen Dr. Gifford perform the operation he had described and the only question in his mind was to follow up the cases and know what the results were. Inasmuch as Dr. Gifford had had a large experience in this line of work, he expressed the hope that he (Dr. Gifford) would speak further on the subject.

Dr. Gifford, in closing the discussion, said he had never tried electrolysis in connection with probing. When he first got the idea of using electrolysis he was afraid to try it lest he might get more cicatricial contraction. Electrolysis meant a certain amount of decomposition of tissue, but whether the ultimate result would tend more towards the formation of stricture than one would otherwise have he did not know.

With regard to the intranasal operation one could combine the idea he had suggested of shoving through the membrane of the sac into the nose, with the intranasal operation. All one had to do after making the intranasal opening was to make an external incision through both walls of the sac and shove gauze through into the nose. The scar produced would be imperceptible. He believed some method of covering up the edge of the bone would lead to more permanent results in all operations for making a new hole in the nose.

He had never had the experience related by Dr. Woodruff of curing these cases with a single syringing of the sac.

As to the after-treatment of this method of destroying the sac, it did not amount to anything. All one had to do was to pack the cavity with some aristol, merely to keep the cavity from filling up with tears, and keep a little zinc oxid ointment on the opening in the skin. The granulating cavity left by the trichloracetic, unless it were filled with powder or the sides kept pressed together, might tend to fill with pus. In one case of mucocele he had that thing happen. The mucocele was as large as a pigeon's egg. The woman returned two weeks after the acid had been used with the pocket dilated with pus. He let out the pus and pushed the walls together with a wad of cotton on the outside, kept a bandage on to hold the edges and the thing closed up.

SOME OBSERVATIONS ON THE OPERATION OF IRIDOTASIS FOR GLAUCOMA.

Dr. Dunbar Roy, of Atlanta, Georgia, stated that the only advantage in the iridotasis operation was the avoidance of a possible hemorrhage to the anterior chamber which might occur in either of the two other operations. In the simple non-inflammatory forms of glaucoma the use of cocain as an anesthetic was all sufficient.

After reporting five cases in which he had done this operation he said there was no universally ideal operation for glaucoma. Each ophthalmologist had his own special technic which he considered the best for this class of cases. He believed that most men were

agreed that nothing short of some well recognized operative procedure should be attempted in those cases of acute fulminating glaucoma. Personally he had discarded the use of myotics except as an adjuvant, for he believed in immediate operation in every case of well recognized acute and chronic glaucoma.

There were good arguments favoring the use of this operation. 1. Its simplicity and ease of technic. 2. The immediate result in relieving all the symptoms was just as permanent as that obtained by any other operation. 3. Freedom from irritation in the healing of the eye.

DISCUSSION.

Dr. Casey A. Wood said all were interested in the Borthen operation, as it touched a probable cure for chronic simple glaucoma. Almost any operation would cure a case of glaucoma in which acute attacks occur, but in cases of slowly progressive, simple glaucoma we have a much more difficult problem to deal with and it seemed to him that the operation described by the essayist was the simplest and perhaps the most satisfactory method of dealing with this formidable disease.

He had one practical suggestion to make in connection with the operation itself, based on his own experience.

Owing to the screen of conjunctival flap it is not easy to pass an iridectomy forceps into the anterior chamber through the small opening called for by Borthen and required for success in this operation. Fortunately, this part of the procedure is not necessary if one, in withdrawing the keratome, press upon the posterior lip of the wound. A gush of aqueous follows pressure against the posterior surface adjoining the scleral wound and with the flow of fluid the iris margin and the intermediate iridic zone are carried out through the opening. After this has been done one finds the iris in the position desired. In carrying out Borthen's ideas it is now necessary to grasp the iris and pull it up still farther (which constitutes the required "stretching" of the iris) and well outside the incision.

Dr. N. Remmen called attention to Borthen's article which appeared about four years ago in which he (Borthen) described his first operation, which was an accident. He was going to do an iridectomy for glaucoma in a child. He made an opening with the Graefe knife and suddenly there was considerable expulsion of the iris and vitreous and he thought the whole eye was lost. He bandaged the eye and sent the patient home. The patient was not seen again for about two months, at the end of which time the patient returned and to the great surprise of Borthen the eye was almost perfect.

Dr. Remmen said the reason why oculists did not pay much attention to the operation at the time was that Holth had performed iridencleisis and it was thought to be about the same thing. In connection with the operation as described by Dr. Roy there were points of undoubted value. In the first place, pulling or stretching the iris opened up the spaces of Fontana. There was also possibly some filtration. The stretching of the iris may keep the space of Fontana open permanently in the night time as well as in daytime. Tension was higher at night and there was no other operation that would do this as well as this one would. It might infrequently happen that no hypertension in a glaucoma patient could be found in the daytime because of daylight contracting the pupil, but if the patient was put in a dark room for two or three hours and the pupil allowed to dilate we would be able to find increased tension.

As to the use of the tonometer he thought it was of great importance. For example, he had a patient about a year ago who was blind in one eye. He looked at him hurriedly and thought it was a case of atrophy. The patient had been treated by an able physician for atrophy and no operation was done. The sight began to fail in the other eye. The speaker glanced into that eye and saw slight paleness of the disk. Vision was still nearly normal and he began to think of the cause of the atrophy. Meanwhile he thought

he would take the tension and to his surprise found it was nearly fifty. With palpation it seemed practically normal. Myotics did not reduce the tension. He did trephining and got a very good result. He thought trephining would still be considered a good operation. He recalled four cases of glaucoma in which everything else had been tried but trephining and this operation gave a very happy result.

Dr. W. H. Peck expressed himself as being greatly impressed with the good features of iridotaxis because he had been following the results of the Elliott operation and had found a number of cases of late infection, but there was a striking absence of infection in Borthen's cases.

In one of the operations performed by Dr. Roy at the infirmary the iris retracted into the anterior chamber and it was claimed by Borthen that by using atropin this could almost certainly be avoided. Dr. Roy had to draw the iris out again. Dr. Peck could not see any objection to using atropin and, judging from Borthen's results, it would be better to use it. Another good feature was the continued reduction of tension. According to Borthen, palpation with the fingers was practically valueless; that he had practically discarded it and now used the tonometer. Borthen did Holth's operation for a number of years. Cases of injury in which there was incarceration of the iris he noticed were followed by permanent reduction of the tension, and this led him to try stretching of the iris and Dr. Peck believed this operation was going to become popular from almost every point of view. Very few operations had been recorded in the literature in which the results had been so uniformly successful.

He was impressed with the absence of infection in the cases reported by Dr. Casey Wood in his modification of the Zorab operation and tends to concur the greater safety of iridotaxis over trephining. Several of his professional friends had told him that they had practically given up trephining on account of the many cases of late infection. In cases in which there was atrophy of the iris it was practically impossible to do iridotaxis.

Another point of importance was to make a very small incision, otherwise the iris was almost certain to retract into the anterior chamber.

Dr. Harold Gifford, Omaha, Neb., asked Dr. Roy whether there was a bleb after iridotaxis the same as after trephining.

Dr. Roy replied there was a fairly good bleb.

Dr. Gifford, referring to the cause of detachment of the choroid after trephining, said it was much more frequent than after any operation unless it be the Lagrange. One did not appreciate how often this occurred unless he followed Elliott's advice and used atropin regularly after the operation. In his early cases he was afraid to use atropin after trephining. After he began to use atropin systematically and looked especially for detachment of the choroid he found he had a number of such cases. In one case he had a double detachment of the choroid, one sticking out into the pupil from each side. Detachment of the choroid was an unpleasant looking thing, and although ultimate recovery was said to be invariable, he did not think the man's sight was as good as it would have been if he had not had it. Some attributed the frequency of these detachments after trephining to the sudden loss of fluid; others to a traumatic connection between the anterior chamber and the perichoroidal space. Both theories were wrong; otherwise it would be more common after cataract operations. The true explanation is to be found in the long continued low tension after the trephining. The occurrence of the bleb after iridotaxis showed that the reduction of pressure was due, not to stretching the iris nor to freeing Fontana's spaces (which it evidently cannot do), but to the formation of a fistula.

Dr. H. W. Woodruff spoke of a man who came to the infirmary last April with the history of having had an iridectomy performed on his right eye about eight years ago. This was without result, as there was an entire loss of vision, so that he had no perception to light. When he came he had practically no vision in the remaining eye. The patient could see the movement of the hand in the lower outer field, but could not count fingers at all. Operation was suggested. The man objected to it, stating that he had had such an unfavorable experience with the other eye that he did not want to have any other operation. Eserin was

used and, much to the astonishment of Dr. Woodruff, vision gradually improved until a month ago the patient had 20/80 vision in that eye. The man was able to get about and Dr. Woodruff said he was certainly thankful he did not operate upon that eye.

(To be continued)

JEFFERSON COUNTY

The Jefferson County Medical Society met at the home of Dr. and Mrs. W. H. Gilmore, Mt. Vernon, Ill., Thursday evening, Jan. 27, 1916. Twenty-two physicians, two dentists, and one other guest were present.

The secretary's report for the past year was read and placed on file. It shows that during the past year this society has had seven meetings at which the following subjects have been discussed:

The Kidney in Disease and in Health.

Eugenics and the Physician.

The Manufacture of Serums and the Immune Therapy.

Tubercular laryngitis.

Pyorrhoea: Its Causes and Treatment.

The Harrison Anti-Narcotic Law and Interpretation of Same.

Vesico-Vaginal Fistula—Report of Three Cases.

The X-Ray in the Diagnosis of Disease of the Stomach.

Contagious Diseases and Methods of Prevention.

Reminiscences of An English Army Surgeon.

The smallest number of physicians present at any meeting was 19.

The greatest number of physicians present at any meeting was 31.

The average number of physicians in attendance was 23 4-7.

The membership in this county is 27.

This being the time for the election of officers for the new year the following were elected: President, Todd P. Ward; vice-president, R. R. Smith; secretary and treasurer, Andy Hall; censor, O. A. Suttle; delegate, Andy Hall; alternate, E. E. Edmundson.

The scientific program for the evening was a "Symposium on Poisons." The subject was discussed by Drs. O. A. Suttle, J. W. Hamilton, W. H. Gilmore, J. T. Whitlock, C. W. Hall, H. M. Swift, M. D. Henderson, E. E. Edmundson, Todd P. Ward, Thomas B. Williamson and Andy Hall.

Following the scientific program a sumptuous buffet lunch was served. This was followed by an hour spent in social games.

Our society is in a healthy condition and has had the best attendance the past year in its history.

ANDY HALL, Secretary.

LAKE COUNTY

Lake County Medical Society met in regular session at Ft. Sheridan on Thursday evening, Jan. 13, 1916, as guests of the medical officers of the post.

After a trip of inspection through the hospital we were taken to the mess room and served dinner army style, after which we listened to the following very interesting program:

Paper on "Treatment of Delayed Union of Fracture," by Capt. Von Shrader, which was well illus-

trated by a number of radiographic views and presentation of some cases he now has under treatment.

Paper, "Surgical Diseases of Trachea and Larynx," by Dr. E. F. Gavin of Waukegan.

Captain Porter of the Post told us of the Medical reserve corps of the United States and urged those of us interested to make application for appointment in same.

We then listened to a most interesting talk by Colonel Tate on the duties of army life, what we as American citizens owe to our country. He also praised the self-sacrifices and patriotism of our profession at all times when duty called. Major Tompkins related a number of incidents and anecdotes of his own experience that occurred while he was in the Indian service on our frontier years ago.

The resolution petitioning the Secretary of War that adequate provision in reorganization of the army be made for a sufficient number of medical officers as the surgeon-general of the army may deem necessary was unanimously adopted.

On account of stormy weather our attendance was small, only twelve of our members being present, but those of us who did attend felt well repaid, for it was indeed a glorious good time and the evening passed only too quickly. A vote of thanks was tendered our hosts for the excellent manner in which they had entertained us, and from the various expressions heard after the meeting I am sure it has been many months since this society has had a meeting that would compare with this one. Our next meeting will be held in Waukegan some time in February, subject to be a "Symposium on Tuberculosis."

C. S. AMBROSE,

Secretary.

LIVINGSTON COUNTY

The Livingston County Medical Society held its semi-annual meeting at Pontiac, November 1, and it was one of the best meetings in its history. Twenty-three members were present and enjoyed an excellent program, after which dinner was served.

MADISON COUNTY

The first meeting of the new year of the Madison County Medical Society was held in Granite City on January 7, 1916, with our new president, Dr. R. D. Luster of Granite City, in the chair. In spite of bad weather conditions twenty-two doctors were present, and the meeting was full of marked interest. Dr. Bransford Lewis, of St. Louis, presented a general review of "Genito-Urinary Surgery" and illustrated his lecture with specially prepared slides. His effort was highly appreciated and proved to be very instructive. Dr. O. C. Church, of Glen Carbon, who lately came to this county from Bond county, was admitted to membership. Bills for our tuberculosis work in the county during the past month amounting to \$30.59 were presented, audited and ordered paid. Dr. R. S. Barnsback, treasurer of the Madison County Anti-tuberculosis Society, reported that he had deposited in the Bank of Edwardsville \$500 to the credit

of the above-mentioned society, which on motion was approved. He was also instructed to secure a community nurse for this county for a period of at least four months of 1916 to work under the direction of this society.

The following resolutions offered by Dr. F. W. Braner, of Troy, were unanimously adopted:

WHEREAS: The State Board of Health has made announcement in the December number of the ILLINOIS MEDICAL JOURNAL of its intention to present to the next legislature an amendment to the Medical Practice Act, to enable all reputable, regularly licensed physicians to enjoy reciprocity privileges, now therefore, be it

Resolved: By the Madison County Medical Society, in regular session assembled, that it heartily congratulates the State Board of Health on this most welcome proposed amendment, and be it further

Resolved: That the secretary of the society be and is hereby instructed to forward a copy of this resolution to the State Board of Health, and also to each legislator in Madison county, with instructions to vote for the said proposed amendment.

On motion of Dr. J. B. Hastings the society will meet in Edwardsville on the first Friday in February, 1916.

E. W. FIEGENBAUM,

Secretary.

ST. CLAIR COUNTY

The yearly meeting of the St. Clair County Medical Society was held at the city hall of Belleville, Ill., Jan. 6, 1916, with President Campbell in the chair and 13 members present.

Upon motion of Dr. Lillie the offices of secretary and treasurer were combined by electing the same member to both offices.

The following members were elected:

President, Dr. B. H. Portuondo; vice-president, Dr. J. H. Fulgham; secretary and treasurer, Dr. A. E. Hansing; board of censors, Drs. E. P. Raab, C. P. Renner, J. W. Rendleman; program committee, Drs. C. W. Lillie, Florence L. Evans, J. W. Rendleman, E. P. Raab and A. E. Hansing, delegate to State Society. Dr. R. L. Campbell; alternative, Dr. G. C. Otrich.

Resolutions in memory of Dr. A. M. Scheel, who died a few weeks ago, were adopted. Several bills were allowed and ordered paid.

Dr. C. W. Lillie read a very interesting paper on "Cancer," which was fully discussed by all members present.

Upon motion the society adjourned to meet again at East St. Louis the first Thursday in February.

A. E. HANSING, Secretary.

WINNEBAGO COUNTY

The Winnebago County Medical Society held its annual banquet at Nelson Hotel, Rockford, on January 11, 1916, with Dr. E. W. Goembel, vice president, in the chair and twenty-three members present.

Following the banquet the society was called to order and minutes of last meeting read and approved, followed by the secretary-treasurer's report for 1915.

Drs. W. P. Earngey and H. R. Sullivan, both of Rockford, were voted in as members of the society. The following program was rendered:

Dr. Fitch gave a talk on "Tuberculosis and the Rockford Tuberculosis Sanitarium."

Dr. Lichty spoke on "The Municipal Tuberculosis Sanitarium and What It May Achieve."

Dr. Pattison was called upon to make a few remarks on the local tuberculosis sanitarium.

The speakers of the evening were given a rising vote of thanks by the society for their able and instructive remarks.

The society instructed the president to appoint a committee of three to confer with the members of the city council as to the possibility of furthering an ordinance that would compel more sanitary conditions in buildings already erected, and also compel all modern health regulations to be considered in the erection and construction of new buildings.

The society extended a vote of thanks to the Nelson Hotel Company for all courtesies shown them the past year.

The annual election was then held and the following officers elected:

Dr. D. B. Penniman, president; Dr. C. A. Walker, vice president; Dr. C. M. Ranseen, secretary-treasurer; Dr. E. E. Ochsner, delegate; Dr. G. A. Dagnault, alternate delegate; Dr. T. F. Kinley, censor; Dr. Daniel Lichty, advisor to State Medico-Legal Committee. The meeting then adjourned.

DR. C. M. RANSEEN,
Secretary-Treasurer.

Personals

Dr. T. A. Smurr of Ottawa, recently suffered a Colles' fracture.

Dr. Henrietta M. Farquharson, Chicago, was struck by a wagon and severely bruised, recently.

Dr. Edward H. Weld, of Rockford, has joined the staff of St. Mary's hospital at Rochester, Minn.

Dr. William J. Riley, Jr., has been appointed an assistant physician on the staff of the Elgin State Hospital.

Dr. J. F. Courtney of Lockport, escaped serious injuries when his auto was struck by an electric car recently.

Dr. F. J. Norbury has been appointed chief consulting neurologist of the Wabash Railroad Hospital Association.

Dr. Victor A. Bles of the staff of the Elgin State Hospital, who has been seriously ill, is reported to be improving.

Dr. Coleman G. Buford delivered an address

before the Galesburg Medical Society, January 4, on "The Goiter Question."

It is reported that Dr. E. A. Garrett of Peoria, will be appointed commissioner of health to succeed the late Dr. Edward Hasson.

Dr. W. B. Caldwell of Monticello, who had a leg amputated recently for gangrene, is reported to be recovering in spite of his 76 years.

Dr. Arthur D. Black has accepted an invitation of the University of California to give a course of lectures during January in that institution.

Dr. George N. Lucas, formerly of the staff of the Elgin State Hospital, has accepted a position on the staff of the Wilgus Sanatorium, Rockford.

Dr. William A. Evans, who was operated on for disease of the gallbladder, January 4, is reported to be making satisfactory progress toward recovery.

Dr. Dean D. Lewis gave an illustrated lecture on "Principles of the Transplantation of Tissue" in the amphitheater of the Cincinnati General Hospital, January 5.

Dr. E. Louise Abbott has been transferred from the staff of the Elgin State Hospital to the position of assistant physician at the Lincoln State school and colony.

Dr. J. D. Camerer, of Kinmundy, reports the loss of his office and contents by fire January 12, representing a cash loss of \$3,600, partly insured, and a collection of curios that cannot be replaced.

Dr. William J. Uppendahl, Peoria, who has been attached to the British Hospital Service in Europe for six months, now writes that he will remain in the war zone for a second six months.

Dr. Charles E. Sisson, of Elgin, has been appointed chief of the medical staff of the Norwalk State Hospital near Los Angeles. This is a large new institution, built to accommodate 3,000 patients.

Dr. Edward Cunat was a member of the relief expedition for Montenegro on the steamship *Italia*, which was sunk in the Mediterranean recently. He fortunately was saved after being three hours in the water.

Drs. James M. Neff and Philip S. Chancellor, members of the Chicago unit, have been commended in general orders by General Sir John French for "superlative service" with the American Hospital Units in France.

Give Dr. Burr credit for "Making the Line" by his article in the January JOURNAL:

WOOF! WOOF!

[From the Illinois Medical Journal.]

History affords many instances of great achievements in advanced age. Picture to your mind the sturdy old dogs of Venice.

Corwin deserved to land "in line" with his "Marriage of *Deceased* Individuals" in the December journal.

Major-General William C. Gorgas, Surgeon-General, U. S. Army, addressed the Geographic Society January 7, on "Sanitation in Its Relation to Geography." January 10 he was the guest of honor at a banquet of the Chicago Single Tax Club and other organizations and spoke on "Sanitation and Single Tax." During his stay of six days in the city he was the recipient of a round of entertainments by clubs and organizations which thus showed their appreciation of the man who made the Panama Canal possible.

Dr. C. W. Lillie, president of the Illinois State Medical Society, with the presidents of other state societies, held a conference with President Wilson and the House Committee on Military Affairs to discuss the subject of efficiency in the Medical Department of the United States Army. While not advocating an increase in the army itself, they desire to show the necessity of a medical service in proportion to the size of the army, and especially to urge on congress the need of trained and efficient medical officers before an emergency prevents proper training.

News Notes

—A new \$100,000 hospital for theatrical people is to be built this year on Irving Park boulevard near Sheridan road.

—The Chicago surface lines are to invest \$250,000 in the installation of ventilation systems in 1,500 street cars.

—The U. S. Supreme Court has upheld the Illinois statute prohibiting the use of food preservatives containing boric acid.

—Epidemics of mumps are reported at the naval training station; scarlet fever at Rockford and Hillsboro, and diphtheria at Cherry.

—The Chicago Department of Health has been making strenuous efforts to locate the source of fake aspirin that has flooded the drug market lately.

—H. J. Fallon, a manual training teacher in Evanston, was found to be sick with smallpox after meeting his class which fortunately was smaller than usual.

—One life at least has been saved at the Cook County Hospital by blood transfusion in a case of gas poisoning, after the method advocated by Dr. Wm. H. Burmeister.

—Dr. Elnora Folkmar of Washington, is said to advocate the repopulation of Europe by artificial fertilization. Of course, only Apollos need apply. Don't crowd there. Get in line.

—The U. S. Supreme Court has upheld the Shurley amendment to the pure food and drug act directed against the inter-state transportation of fake cures. The shipment in question was a consumption "cure" sent from Chicago to Omaha.

—The Chicago Tuberculosis Institute announces that from all indications it will have between \$25,000 and \$30,000 to spend in its war on tuberculosis during 1916, the largest sum ever collected for this purpose by the sale of Red Cross Christmas seals.

—The Ottawa City Medical Society was entertained at dinner at the home of Dr. A. J. Roberts, January 12. Dr. T. W. Burroughs acted as toastmaster and was re-elected president. Dr. J. H. Edgecomb was elected secretary to succeed Dr. E. P. Hatheway.

—The Madison County Editorial Association, complying with the physicians' request, has decided not to mention any physician in connection with their cases, and will go them one better by not referring to them even socially except as "Mr." instead of "Dr."

—The heavy rain January 20 threatened to pour a flood of sewage into Lake Michigan through the Chicago river. This danger did not materialize, but sewage backed up so close to one of the pumping stations that a general alarm was given through the schools to "boil the water."

—At the annual meeting of the Chicago Ophthalmological Society held January 17, 1916, the following officers were elected to serve during the ensuing year: President, Dr. Wm. E. Gamble; vice-president, Dr. Francis Lane; secretary-treasurer, Dr. Paul Guilford; councilor, Dr. J. Sheldon Clark.

—The *Madison County Doctor* for January maintains the high standard of that excellent publication, and contains an interesting attendance roll of members for the past year. It is quite evident what a live secretary can do to the members in his own town at least, for only one member of Edwardsville registered a "goose egg," and he is 80 years old.

—The Robert Koch Society for the Study of Tuberculosis, affiliated with the Chicago Tuberculosis Institute, held its seventeenth meeting at the Morrison Hotel January 19, at 12 noon. Dr. Harry J. Corper of the Municipal Tuberculosis Sanatorium read a paper on "Complement Fixation in Tuberculosis" and the discussion was opened by Dr. Ludvig Hektoen.

—George O. Hartman, the St. Louis leper who escaped two years ago from the Leprosy Colony at Koch, Mo., is isolated in a wing of the Cook county jail. Since his escape from the leper colony, Hartman has been working at various trades, and in November opened a restaurant in Chicago and also kept a rooming house. He was arrested to answer to an indictment for robbery and on the usual physical examination, the disease was discovered.

—The American Orthopedic Association announces the appointment of Dr. Mark H. Rogers, Boston, as editor of *The American Journal of Orthopedic Surgery*, the only periodical in the English language devoted to Orthopedics. This journal, which has now completed 13 volumes as a quarterly publication, will henceforth be issued monthly, the first number of the new form being that of January, 1916.

The office of publication has been transferred from Philadelphia to Ernest Gregory, 126 Massachusetts Ave., Boston. The subscription price is \$4.00 per year.

—Who would resist this invitation to attend Englewood's meeting?

Our last meeting was a daisy,
But this we say without fear,
The subject for this evening
Is the best so far this year
The Tonsil! O, you Tonsil!
What shall we do with you?
Are you a blessing in disguise,
Or evil thru and thru?
We have good men to tell us
Just what you really do,
You'll be discussed and maybe cussed
You'll know when they are thru.
Now doctor do not miss this chance,
This night to be on hand;

You surely know you ought to go,
To hear this subject grand.
—*The News-Letter.*

Marriages

JOHN GARDINER, M. D., to Miss Edith Miles, both of Mt. Morris, in Chicago, January 1.

WILLIAM EDWARD MORGAN, M. D., Chicago, to Mrs. Kate I. Berry of Bradford, Pa., December 22.

SELIM WALKER MCARTHUR, M. D., Chicago, to Miss Jean Dean Gillett Barnes of Decatur, Ill., January 1.

HARRY GRIFFITH HIRSCHLE, M. D., to Miss Leota L. Harless, both of Canton, Ill., in Chicago, December 18.

WILLIAM SPENCER HARVEY, M. D., Chicago, to Mrs. Allie McHenry Cartwright of Nashville, Tenn., at San Francisco, December 11.

Deaths

GEORGE EVELYN MORGAN, M. D. Hahnemann Medical College, Philadelphia, 1871; died at his home in Austin, Chicago, December 23.

HOLLAND W. RICHARDSON, M. D. Rush Medical College, 1862; Bellevue Hospital Medical College, 1870; aged 84; died at his home in Marengo, of pneumonia.

WILLIAM SIGSBEE, M. D. Castleton (Vt.) Medical College, 1852; aged 87; a practitioner of Illinois since 1868; died at his home in Mendon, Ill., January 1.

EDWARD M. HASSON, M. D. Rush Medical College, 1899; health commissioner of Peoria, and formerly county physician of Peoria county; died at the Proctor hospital after a brief sickness, January 16.

JAMES R. TWEDDALE, M. D. Rush Medical College, 1869; aged 83; a Fellow of the American Medical Association; a veteran of the Civil war; a mason; in active practice until his retirement three years ago; died of pneumonia at his home in Washburn, December 18.

PLINY W. BLANCHARD, M. D. Berkshire Medical College, Pittsfield, Mass., 1854; aged 86; assistant surgeon of the Forth-Ninth Wisconsin Infantry, U. S. V., throughout the Civil war; for sixteen years health officer of Harvard, Ill.; died at his home in Harvard, December 17.

WILLIAM LINCOLN BALLENGER, M. D. Bellevue Hospital Medical School, 1886; aged 54; of Chicago; a Fellow of the American Medical Association; well known as a specialist on diseases of the throat, nose and ear; professor of laryn-

gology, rhinology and otology in the College of Physicians and Surgeons, Chicago; secretary of the American Academy of Ophthalmology and Oto-Laryngology from 1899 to 1902; president from 1902 to 1904 and since that time councilor; and of the Chicago Laryngology and Otological Society; professor of otology in the Chicago Eye and Ear College; a member of the International Otological Congress; author of a standard textbook on diseases of the nose, throat and ear, which was published in 1900; died in Economy, Ind., from diabetes, December 21.

LUTHER J. HARVEY, M. D. Washington University, St. Louis, 1875; aged 64; of Griggsville; died suddenly of apoplexy, while making a professional call, January 17. Dr. Harvey attended Bellevue Hospital Medical College a year before entering Washington University. After spending a year as interne in the City Hospital of St. Louis, he began practice in Griggsville and enjoyed the confidence of a large clientele till his death. He was a good citizen and active in civic affairs; director of the Griggsville National bank and of the Pike County Telephone Company; and had served the city as alderman. He was a member of Morgan County Medical Society, and served as president in 1899. He was delegates to the American Medical Association from the Illinois State Medical Society in 1900, and April 19, 1900, was elected the first president of the



William L. Ballenger, M. D.

HIRAM CARNAHAN, M. D. Rush Medical College, 1860; aged 85; of Compton, Ill.; died at the home of his daughter in Mendota, Ill., January 3.

CORA E. TAYLOR, M. D. Pulte Medical College, Cincinnati, 1884; aged 62; died at her



Luther J. Harvey, M. D.

Pike County Medical Society, which he was instrumental in organizing. In 1901 he was elected a member of the Judicial Council of the Illinois State Medical Society, a position which he held three years.

MAXIMILIAN KUZNIK, M. D. College of Physicians and Surgeons, Chicago, 1903; aged 36; professor of clinical diagnosis in Hering Medical College, and the Chicago College of Medicine and Surgery; died at his home in Chicago, January 4, from rheumatic endocarditis.

EMMETT J. COLE, M. D. Hahnemann Medical College, Chicago, 1896; aged 64; a member of the Illinois State Medical Society and of the State Medical Society of Wisconsin; for four years mayor of Rockton, Ill.; died at his home in that city, December 22, from heart disease.

FRANK GRANT MASON, M. D. Rush Medical College, 1890; aged 50; for eight years chief adjuster of the Pacific Mutual Life & Accident Insurance Co., and North American Accident Insurance Co., also a graduate in pharmacy; died at his home in Chicago, December 23, from heart disease.

HENRY S. METCALF, M. D. Northwestern University Medical School, 1886; aged 62; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home in Mount Carroll, Ill., December 15, from septicemia due to an operation wound.

ADOLPHUS M. SCHEEL, M. D. University of Munich, Bavaria, 1876; aged 64; a Fellow of the American Medical Association; died at his home in Belleville, Ill., December 16, from heart disease. The Belleville Medical Association at a special meeting December 18 adopted resolutions recognizing the sterling worth of Dr. Scheel and regretting his death.

JOHN ANDERSON DAVIS, M. D. University of Michigan, Ann Arbor, 1873; aged 68; a Fellow of the American Medical Association; a well-known practitioner of central Illinois; a member of the Illinois Central and Yazoo and Mississippi Valley Railway Surgeons' Association; local surgeon at Farmer City for the Illinois Central Railroad since 1899; died at his home in Farmer City, December 20, from pneumonia.

HENRY CLAY FAIRBROTHER, M. D., Washington University, St. Louis, 1872; aged 70; a Fellow of the American Medical Association; a veteran of the Civil war; originator of the East St. Louis park system; a director of the Illinois State Bank; surgeon to many of the railways cen-

tering in East St. Louis; for several terms a member and president of the local school board; died at his home, December 15, from heart disease.

CHARLES HEADY BEARD, M. D. University of Louisville, Ky., 1887; aged 60; a Fellow of the American Medical Association and American College of Surgeons; a member of the Mississippi Valley Medical Association, Chicago Ophthalmological Society of which he was once president, American Ophthalmological Society and Physicians' Club of Chicago; chief surgeon of the Illinois Charitable Eye and Ear Infirmary and head of the ophthalmologic staff of the Passavant Memorial Hospital; for more than thirty years a specialist on diseases of the eye and ear; died at his home in Chicago, January 3, from carcinoma of the stomach.

NEW AND NON-OFFICIAL REMEDIES

During December the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

Heilkraft Medical Co.: Dimazon, Dimazon Oil, Dimazon Ointment, Dimazon Powder.

Hoffman-La Roche Chemical Works: Betain Hydrochloride, Roche; Beta-Naphthol Benzoate, Roche; Ergotinine Citrate, Roche; Homatropine Hydrochloride, Roche; Seiden Peptone, Roche; Theobromine and Sodium Acetate, Roche.

Hynson, Westcott and Co.: Mercury Biniodide Oil Solution in Ampules, H. W. and Co.

Knoll and Co.: Ichthalbin Tablets, 5 grs.; Triferrin Tablets, 5 grs.

Merck and Co.: Antithyroidin Moebius Tablets, $\frac{3}{4}$ grs.; Apiol, Merck; Berberine Hydrochloride, Merck; Creosote Carbonate, Merck; Dionin Tablets, Hypodermic, 1 gr.; Dionin Tablets, $\frac{1}{4}$ gr.; Ergotin, Merck; Euquinine Tablets, 2 grs.; Euquinine Tablets, 5 grs.; Ferratin Tablets, $4\frac{1}{2}$ grs.; Iodipin Tablets, 3 min.; Iron Lactate, Merck; Liquid Petrolatum, Merck; Quabain, Merck; Phenolphthalein, Merck; Phloridzin, Merck; Quinine Tannate, Merck; Sodium Phosphate, Monobasic, Merck; Sodium Nucleinate, Merck; Stypticin Tablets, Hypodermic, $\frac{3}{4}$ gr.; Stypticin Tablets, Dental, $\frac{3}{4}$ gr.; Stypticin Tablets, Sugar-Coated, $\frac{3}{4}$ gr.; Sulphanilic Acid, Merck; Theophyllin Sodium Acetate Tablets, .15 gm.; Triphenin Tablets, 5 grs.; Tropicocaine Hydrochloride Tubes, Sterilized, 1 gr.; Veronal Sodium Tablets, 5 grs.

H. K. Mulford Co.: Diphtheria Toxin for Immunity Test (Schick Test), Mulford.

Parke, Davis and Co.: Iodalbin and Mercuriol Tablets; Mercuriol Tablets, $\frac{1}{4}$ gr.; Mercuriol Tablets, $\frac{1}{2}$ gr.; Mercuriol Tablets, 1 gr.; Mercuriol Tablets, 2 grs.; Mercuriol with Potassium Iodide Tablets.

Powers-Weightman-Rosengarten Co.: Calcium Phenolsulphonate, P. W. R.

Swan-Myers Co.: Swan's Typhoid Bacillus Vaccine (No. 44) (Hospital Package); Swan's Typhoid Bacillus Vaccine (No. 44) (Board of Health Package).

Lehn and Fink: The Council has recognized Lehn and Fink as selling agent for Chloralamid, Schering.

Since publication of New and Non-official Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-official Remedies:"

Euresol pro Capillis.—Euresol (see New and Non-official Remedies, 1915, p. 268) perfumed to render it suitable for scalp lotions. Merck and Co., New York (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Pollen Extract (Pollen Vaccine).—A solution of pollen protein. It is used for the relief of prophylaxis of a common type of hay fever (pollinosis). Before using it the patient's susceptibility and tolerance should be determined. Treatment with pollen extract has seemed to give relief in some cases.

Hay Fever Vaccine, Mulford (Autumnal).—Pollen extract prepared from ragweed. Marketed in packages of four syringes containing, respectively, 0.0025 mg., 0.005 mg., 0.01 mg. and 0.02 mg. of pollen protein. Also in separate syringes containing 0.02 mg. pollen protein. The H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Mercuric Succinimide, Merck.—A non-proprietary brand of mercuric succinimide admitted to New and Non-official Remedies. Merck and Co., New York (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Morphine Meconate, Merck.—A non-proprietary brand of Morphine Meconate admitted to New and Non-official Remedies. Merck and Co., New York (Jour. A. M. A., Dec. 4, 1915, p. 2009).

Swan's Staphylococcus Bacterin (No. 37).—Marketed in packages of six 1 Cc. vials and in 20 Cc. vials. Swan-Myers Company, Indianapolis, Ind.

Swan's Streptococcus Bacterin (No. 43).—Marketed in packages of six 1 Cc. vials and in 20 Cc. vials. Swan-Myers Company, Indianapolis, Ind.

Calcium Peroxide, Merck.—A non-proprietary brand of calcium peroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Sodium Peroxide, Merck.—A non-proprietary brand of sodium peroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Zinc Peroxide, Merck.—A non-proprietary brand of zinc peroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Ethyl Salicylate, Merck.—A non-proprietary brand of ethyl salicylate admitted to New and Non-official Remedies. Merck and Company, New York.

Osmic Acid, New York.—A non-proprietary brand of osmium tetroxide admitted to New and Non-official Remedies. Merck and Company, New York.

Sodium Oleate, Merck.—A non-proprietary brand of sodium oleate admitted to New and Non-official Remedies. Merck and Company, New York.

Thiosinamine, Merck.—A non-proprietary brand of thiosinamine admitted to New and Non-official Remedies. Merck and Co., New York.

Urea, Merck.—A non-proprietary brand of urea admitted to New and Non-official Remedies. Merck and Company, New York.

Ampules Sodium Cacodylate, Mulford, 7¾ grains.—Each ampule contains sodium cacodylate 0.5 gm. H. K. Mulford Company, Philadelphia, Pa.

Ampules Sodium Cacodylate, Mulford, 15 grains.—Each ampule contains sodium cacodylate, 1 gm. H. K. Mulford Company, Philadelphia, Pa.

Ampules Solution Pituitary Extract, Mulford, 0.5 Cc.—Each ampule contains solution pituitary extract 0.5 Cc. H. K. Mulford Company, Philadelphia, Pa. (Jour. A. M. A., Dec. 11, 1915, p. 2085).

Scarlatina Strepto-Serobacterin, Mulford (Therapeutic), (Sensitized Scarlatinal Streptococcic Vaccine).—Marketed in packages of four syringes. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Quinine Dihydrochloride (Quinae Dihydrochloridum).—The dihydrochloride of the alkaloid quinine. Since quinine dihydrochloride is very soluble, its use has been proposed where concentrated solutions of quinine are wanted, as for sub-cutaneous injections and similar purposes.

Ampules Quinine Dihydrochloride, Mulford, 0.24 Gm.—Each ampule contains 0.24 gm. quinine dihydrochloride in 1 Cc. of sterile solution. H. K. Mulford Co., Philadelphia, Pa.

Ampules Quinine Dihydrochloride, Mulford, 0.05 Gm.—Each ampule contains 0.5 gm. quinine dihydrochloride in 1 Cc. of sterile solution. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Purified Tricresol, Mulford.—A mixture of isomeric cresols, corresponding closely to Cresol, U. S. P. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Iodosticks (Iodine 60 per cent. and Potassium Iodide 40 per cent.).—Wooden sticks 1½ inches long, tipped with a mixture of iodine 60 per cent. and potassium iodide 40 per cent. Antiseptic Supply Co., New York. (Jour. A. M. A., Dec. 18, 1915, p. 2167).

Iodoapplicators and Iodoapplicators, Special (Iodine 60 per cent. and Potassium Iodide 40 per cent.).—Wooden sticks 6½ and 12 inches long, respectively, tipped with a mixture of iodine 60 per cent. and potassium iodide 40 per cent. Antiseptic Supply Co., New York (Jour. A. M. A., Dec. 18, 1915, p. 2167).

G. Strophanthin (Thoms), Merck.—A non-proprietary brand of ouabain, crystallized. Merck and Company, New York.

Mercury Biniodide Oil Solution in ampules, H. W. and Co.—One Cc. of solution contains red mercuric iodide in a neutral fatty oil, 0.1 gm. (1/6 grain). Hynson, Westcott and Co., Baltimore, Md.

Mercuriol Tablets, $\frac{1}{4}$ Gr.—Each tablet contains mercuriol 0.016 gm. Parke, Davis and Co., Detroit, Mich.

Mercuriol Tablets, $\frac{1}{2}$ Gr.—Each tablet contains mercuriol 0.03 gm. Parke, Davis and Co., Detroit, Mich.

Mercuriol Tablets, 1 Gr.—Each tablet contains mercuriol 0.065 gm. Parke, Davis and Co., Detroit, Mich.

Mercuriol Tablets, 2 Grs.—Each tablet contains mercuriol 0.13 gm. Parke, Davis and Co., Detroit, Mich.

Mercuriol with Potassium Iodide Tablets.—Each tablet contains mercuriol $\frac{1}{4}$ gr. and potassium iodide 1 gr. Parke, Davis and Co., Detroit, Mich.

Iodalbin and Mercuriol Tablets.—Each tablet contains iodalbin 5 grs. and mercuriol 1 gr. Parke, Davis and Co., Detroit, Mich.

Liquid Petrolatum, Merck.—A non-proprietary brand of liquid petrolatum, U. S. P. It is made from American petroleum. It is colorless, non-fluorescent, practically odorless and tasteless. Merck and Co., New York (Jour. A. M. A., Dec. 25, 1915, p. 2239).

Book Notices

A TEXT BOOK OF THE PRACTICE OF MEDICINE. By James M. Anders, M. D. Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Twelfth Edition Thoroughly Revised. Octavo of 1336 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$5.50 net; Half Morocco, \$7.00 net.

This twelfth revision during eighteen years illustrates the great changes that are being made constantly in our ideas of medical practice. Twelve revisions indicate in no uncertain manner the popularity of medical work, and a volume undergoing such frequent and careful change needs no other recommendation.

The general make-up of the book has not been changed from former editions, but does contain the up-to-date views of theory and practice. Much additional material has been added in this revision, and many of the subjects have been rewritten. Little has been given of history of medicine. Bacteriology and pathology have been generously treated, and the treatment is studied in accordance with the present-day theories. It is one of the excellent text-books of practice, both for the student and practitioner.

POST-MORTEM EXAMINATIONS. By William S. Wadsworth, M. D., Coroner's Physician of Philadelphia. Octavo volume of 598 pages with 304 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$6.00 net; Half-Morocco \$7.50 net.

Every medical man should know something of post-mortem examinations. Unfortunately, many do not, or, at least, know very little about the subject. Literature upon this subject is not profuse by any means, and a new book on this subject will, we think, be appreciated.

This volume seems to cover the entire field. Much of it is brief, but calls attention to many post-mortem

findings and conclusions reached from the findings. The photographs help materially in making clear the text. We think it a good text-book on an important subject.

AMERICAN ILLUSTRATED MEDICAL DICTIONARY (DORLAND). A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Eighth Revised Edition. Edited by W. A. Newman Dorland, M. D. Large octavo of 1135 pages, with 331 illustrations, 119 in colors. Containing over 1,500 more terms than the previous edition. Philadelphia and London: W. B. Saunders Company, 1915. Flexible Leather, \$4.50 net; thumb index, \$5.00 net.

The previous edition of this work appeared in 1913. This edition has been carefully revised throughout, several new terms defined, and the text-matter increased by thirty pages. Many new texts and tables have been formulated during the last two years, and these will be found in this edition. The volume is of convenient size and mechanical make-up—not purporting to be an encyclopedia, but is a complete, concise medical dictionary.

A large amount of matter has been arranged in tabular form for the convenience of the user. The usual anatomic and clinical tables, together with specially prepared tables of tests, staining methods, methods of treatment, etc., are found. It is altogether a very valuable aid for the medical man.

BONE-GRAFT SURGERY. By Fred H. Albee, M. D., F. A. C. S., Professor of Orthopedic Surgery at the New York Post-Graduate Medical School and the University of Vermont. Octavo volume of 417 pages, with 332 illustrations, 3 of them in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$6.00 net; half morocco, \$7.50 net.

In no field of surgery have results been more brilliant and successful in bone surgery of the last few years. The disfiguring deformities that are now relieved and overcome will mark this as an era of bone surgery. The bone graft, while not strictly new, is now having so much wider application and is of so much value, that it alone will mark this as the epoch-making time of bone surgery.

While much has been seen in medical journals, not many text-books are written on the subject. In this volume are given many applications of this specialty. Illustrations of specially devised instruments of special operations, together with many roentgenograms and drawings, make this a valuable work to the surgeon, or to any one doing bone work.

TRACHOMA. Its Prevalence, Its Effects Upon Vision and the Methods of Control and Eradication, by Gordon L. Berry, Field Secretary, National Committee for the Prevention of Blindness. December, 1915. 130 East Twenty-second street, New York City.

This pamphlet by Dr. Berry, Field Secretary of the National Committee for the Prevention of Blindness, is an excellent paper, written particularly for the layman. The text and a number of illustrations por-

tray fully the danger of trachoma, and how it is frequently contracted. While not written as a treatise on trachoma from a medical standpoint, it contains a great deal of interesting data on this malady.

A copy will be sent free to any physician upon application to the National Committee for the Prevention of Blindness, 130 East Twenty-second street, New York City.

"SPEAKING OF OPERATIONS." By Irvin S. Cobb. Illustrations by Tony Sarg. George H. Doran Company, New York. Price, 50 cents net.

This little book is a layman's description of his experience with doctors and an operation for appendicitis; written in Mr. Cobb's inimitable humorous way. While written in funny vein, it is just possible that Mr. Cobb was quite serious about certain statements. The little book will give one an hour's thorough enjoyment.

VOLUME IV., NUMBER 6, of Murphy's Clinics, December, 1915, just out and contains, among others, the following clinical cases:

- Leukoplakic Papilloma of Buccal Mucosa.
- Recurrent Leukoplakic Papilloma of Buccal Mucosa.
- Papilloma of Lip and of Cheek.
- Congenital Nasal Deformity.
- Carcinoma of Maxillary Antrum.
- Congenital (Thyroglossal Duct) Sinus of Neck.
- Bilateral Cervical Ribs.
- Osteosarcoma of Scapula.
- Osteosarcoma of Humerus.
- Cicatricial Fixation of Ulnar Nerve in Its Groove.
- Hyperflexion Fracture of Radius and Ulna.
- Extensor Contracture of Hands Following Burns.
- Multiple Angiomata.
- Biliary Calculus Impacted at Ampulla of Vater.
- Adenocarcinoma of Neck of Uterus.
- Undescended Testicle.
- Congenital Luxation of Both Hips.
- Coxa Vara (Bilateral).
- I. Recent Comminuted T-fracture in Lower Third of Femur.
- Fracture of Internal Semilunar Cartilage.
- Foreign Bodies in Knee-joint.
- Sarcoma of Popliteal Space.

THE MEDICAL CLINICS OF CHICAGO. January, 1916. Volume I, Number 4. Published bi-monthly by W. B. Saunders Company, Philadelphia and London. Price per year, \$8.00.

This volume of medical clinics seems to be unusually good. The subjects discussed are of those conditions commonly met but frequently hard to diagnose.

The clinicians of this number are Doctors Frederick Tice, Walter W. Hamburger, George H. Weaver, Charles Louis Mix, Ralph C. Hamill, Charles Spencer Williamson, Robert B. Preble, Maurice L. Goodkind and Isaac A. Abt.

SURGICAL OPERATIONS WITH LOCAL ANESTHESIA. Second Edition. By Arthur E. Hertzler, A. M., M. D., Ph. D., F. A. C. S., Surgeon to the Halsted Hospital, Kansas; the Swedish Hospital, Kansas City, Mo.; and to the General Hospital, Kansas City, Mo.

Surgery Publishing Company, 92 William street, New York. 1916. Price \$3.00.

Local anesthesia is soon going to be the anesthesia of choice in many operations now commonly done under general anesthesia. With this view in mind, every medical man should educate himself in the use of local anesthesia.

The author has given detailed description of the various procedures, not only for minor work, but also for the major operations.

The book is entirely practical and its pages are not filled with theory.

The large number of illustrations clearly places to the eye of the reader the text of the book, and both the general practitioner and surgeon will appreciate this work as a reliable guide in their operation work under local anesthesia.

BEAUTY A DUTY, The Art of Keeping Young. By Susanna Cocroft, Author of "What to Eat and When," "Personal Hygiene," "The Reading of Character Through Bodily Expression," etc. Rand, McNally & Co., Chicago; New York. Price \$2.00 net.

PRACTICAL CYSTOSCOPY AND THE DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEYS AND URINARY BLADDER. By Paul M. Pilcher, M. D., Consulting Surgeon to the Eastern Long Island Hospital. Second Edition Thoroughly Revised and Enlarged. Octavo of 504 pages, with 299 illustrations, 29 in colors. Philadelphia and London: W. B. Saunders Company. 1915. Cloth, \$6.00 net; half morocco, \$7.50.

A new revision of this text, by Dr. Pilcher, is just from the presses of W. B. Saunders Co.

The volume deals largely with pyelography, detailing the indication for its use, its technic, and the diagnostic value of radiographic studies of the ureter and kidney. The volume is primarily a text-book on cystoscopy, and aims to make clear the indication for and use of the cystoscope.

The illustrations are numerous and of good quality. Those in color are especially to be mentioned. Altogether we think it a good text upon this subject.

PAINLESS CHILDBIRTH, EUTOCIA AND NITROUS OXYGEN ANALGESIA. By Carl Henry Davis, A. B., M. D., Associate in Obstetrics and Gynecology, Rush Medical College in affiliation with the University of Chicago; Assistant Attending Obstetrician and Gynecologist to the Presbyterian Hospital, Chicago. Forbes & Company, Chicago. 1916. Price, \$1.00.

NITRO BY HYPO, A Pep-Tonized Tonic for the Physician. By Edwin P. Haworth, Superintendent of The Willows Maternity Sanitarium, Kansas City. The Willows Magazine Company. Price ?

A small volume of short essays on topics pertaining to the physician or his practice.

REPORT ON THE MEDICO-MILITARY ASPECTS OF THE EUROPEAN WAR, from Observations taken behind the Allied Armies in France, by Surgeon A. M. Fautleroy, U. S. Navy, Instructor in Surgery, U. S. Naval Medical School, under the direction of the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. Washington Government Printing Office. 1915.

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Original Articles

SURGICAL PROBLEMS CONSIDERED FROM THE STANDPOINT OF MORBIDITY.*

EDWARD H. OCHSNER, B. S., M. D.
CHICAGO.

During the period of surgical renaissance covering the last four decades the attention of surgeons has been chiefly centered upon the reduction of mortality. To convince oneself of the truth of this statement, one need only to look over modern surgical literature, more particularly periodic journals where one may see innumerable titles such as "Fifty consecutive operations for ovarian cysts, with one death," "One hundred consecutive cases operated on for acute appendicitis with three deaths," etc.

This concentration of attention by hundreds of surgeons upon the one problem, mortality, has had its desired effect and major surgical operations, with the possible exception of operations for malignant diseases, when properly performed, are now attended by as few deaths as they probably ever will be. However, this intense concentration on the one subject has had a tendency to minimize other equally important phases of the surgical problem and it would seem to the writer that at the present time it might be well to devote the same consideration to the question of morbidity that has been devoted to the subject of mortality in the past.

The four problems that should confront the modern surgeon as soon as the diagnosis has been made and the question decided that an operation is indicated, are when and how should this patient be operated upon, in order, first, to insure the smallest possible death risk; second, so as to expose the patient to the least possible suffering; third, to shorten as much as possible the period of acute illness and convalescence, and finally, to

reduce to the minimum subsequent invalidism or morbidity.

As stated above, barring malignant disease, the first question has probably been solved as perfectly as it ever will be, at least by that class of surgeons, who, by long apprenticeship and a large personal experience, have acquired sufficient dexterity and reliable automatic technique and the necessary clearness and quickness of judgment to meet all emergencies, provided they have at the same time seen the necessity of a trained, reliable and reasonably permanent force of assistants including an experienced anesthetist, a permanent surgical nurse and a first surgical assistant. More surgical cases go wrong because of untrained assistants than from any other cause. If team work is essential to success on the gridiron and on the baseball diamond, how much more important is it in the surgical operating room, where human life is at stake every day.

The second question on the whole has also been satisfactorily solved. Introduction of general anesthesia by competent, trained anesthetists; the perfection of local anesthesia, as well as the simplification of operative technique and after treatment, have done much to bring this about. Three of the most important things in the reduction of pain and suffering following abdominal operations are the routine administration of a large dose of oleum ricini previous to the operation, the elimination of all meddlesome after-treatment and the use of proctoclysis. So far as I know, all three of these were first systematically employed and popularized by my brother, Dr. A. J. Ochsner. I remember well as an interne, at the County Hospital, only twenty years ago, how patients were being tortured by repeated small doses of calomel and liquid magnesium citrate before and after operations; by constant meddlesome interference with the wound such as aspirating laparotomies every hour, catheterizing and douching perineal cases, and by the torturing thirst to which so many were subjected. All these

*Read before the Chicago Medical Society, Jan. 12, 1916.

things have now been done away with and the ordinary surgical operation, unless accompanied with too much traumatism or performed on a too greatly enfeebled patient, is an undertaking which may be entered upon by anyone without any special fear of great pain and suffering.

The third problem has also been very satisfactorily solved. The period of confinement following operations has been reduced to such a degree that further reduction would probably be hazardous; in fact, I believe some surgeons have already gone beyond the point of safety in this regard.

When we come to the fourth problem, the question of morbidity following surgical operations, I think there is a chance for much improvement. Every man with a large medical experience occasionally sees patients who have undergone one or more operations, who are invalids or semi-invalids, and who are suffering from discomforts and indispositions from which they feel, and I think often rightly, that they should have been relieved by the operation. Sometimes a patient has a minor operation and because of some neglect or lack of attention to detail on the part of the surgeon or his assistants, the patient goes through life with more discomforts than he would have suffered had he not been operated on. Thus, for instance, if a patient has had an operation for catarrhal appendicitis and as a result retains ever so slight an intra-abdominal adhesion he may be rendered more uncomfortable than he would have been without the operation, and if the adhesion is at all extensive his life expectancy may be even less favorable.

This is not as it should be. It should be our constant concern not only to save life wherever possible, but to make life as comfortable and useful as may be, and no effort should be spared to accomplish this result.

In all abdominal operations every precaution should be taken to prevent post-operative adhesions. In this connection I wish to call attention to a number of minor points in technique, which while they are not new are not observed nearly as generally as they should be. First: As to the question of rapidity of operating in intra-abdominal operations. Some years ago I heard a discussion on this subject in which a prominent surgeon stated the whole matter in a sentence. He said: "A surgeon in doing an intra-abdomi-

nal operation should avoid insane haste and imbecile deliberation." The reason for this is that both result in unnecessary shock and undue traumatism. The unnecessary shock may kill the patient within a few hours. The excessive traumatism may do the same, or if the patient survives, is almost sure to result in adhesions, and abdominal adhesions always mean impairment of health and well being.

In operations for the relief of suppurative conditions within the peritoneal cavity great care should be taken to very gently pack away the uninfected portions of the peritoneal cavity with some suitable laparotomy pads before the abscess is opened. While this effort is usually made, my observation is that it is often not done with the gentleness and care with which it should be done, hence, resulting in abrasions of the peritoneal covering of intra-abdominal organs and subsequent adhesions. It has been a constant source

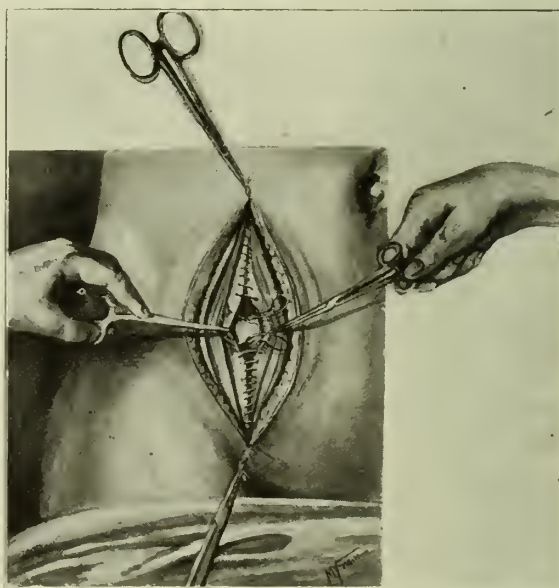


Fig. 1. Method of Closing Peritoneum in Right Rectus Incision.

of wonder to me how many adhesions the peritoneal cavity will get rid of if the peritoneum has been carefully manipulated so that the serous coat has not been unduly injured.

With the right rectus and McBurney's incisions there is always some danger in closing the peritoneum of catching the omentum and unless special effort is taken to avoid this adhesions are very apt to occur. For about ten years I made

use of a device which has entirely done away with discomfort following these operations. It simply consists of suturing the peritoneum from each angle and lifting up the peritoneum with two mouse-toothed forceps when the two sutures are tied together. This absolutely prevents the possibility of catching the omentum or any abdominal organs.

If this is avoided the temporary adhesions of the omentum to the abdominal wound will disappear within a week, as I have had occasion to prove; while, if this precaution is not taken and a stitch penetrates the omentum an opportunity for the mesoblastic cells of the omentum joining with the mesoblastic cells of the abdominal wall is given and a permanent adhesion is very likely to result. In midline laparotomy below the umbilicus this precaution is not so necessary, because here the peritoneum is not so firmly attached to the under surface of the muscles and the recti muscles pull apart instead of together and away from instead of toward the abdominal viscera and the danger of catching the omentum or viscera is much smaller.

In inguinal hernias, especially on the left side, I have seen a number of cases where in sewing up the hernial sac the surgeon had caught the sigmoid not deep enough to cause a fistula, but deep enough to cause a lot of subsequent trouble.

In appendicitis operations I have seen a number of cases where the surgeon in burying the stump had attached the ilium to the head of the cecum. I have in mind one such case in particular operated upon by a prominent surgeon for catarrhal appendicitis. This patient was a chronic invalid with a number of severe attacks of partial intestinal obstruction, which were only relieved by subsequent operation.

All of these complications are avoidable, at least in a much larger percentage of cases, if a little more care is exercised by the operator. And to the individual patient this means a great deal, and to surgery it means still more, because every patient who suffers through life from some neglect, oversight, or carelessness of the operator, gives legitimate surgery a black eye and often prevents some relative or friend from seeking surgical relief when he most needs it.

In gynecological surgery, I have seen quite a number of patients operated upon for pelvic infection, who, it seemed to me, could have been

spared subsequent invalidism if proper precautions had been taken to prevent post operative adhesions and displacement of the uterus. Unless some provision is made after operating for extensive pelvic abscess, the raw denuded uterus is very apt to fall into the hollow of the sacrum, become adherent there and cause chronic constipation, with its full train of well known systemic disorders. This undesirable condition can be easily avoided by employing a little trick which I described in an article entitled, "Temporary Vento-Suspension of the Uterus,"¹ and which I have now employed in a great many cases with uniformly excellent results. It simply consists in stitching the fundus of the uterus to the anterior abdominal wall below the laparotomy incision with seven-day unchromicised catgut. This holds the uterus away from the abraided pelvic floor until the abrasions have been covered with new peritoneum and until the round ligaments have had an opportunity to regain their tone.

In orthopedic surgery and particularly in joint tuberculosis, the need of attention to every detail is probably greater than in any other field of surgery and the rewards are correspondingly commensurate, as no line of surgery gives more gratifying results than this, if proper precautions are taken during the operation and if the after treatment is followed up with proper persistence. A surgeon may be a brilliant operator and yet have a very small per cent. of complete recoveries in this line of work, unless he makes provision that the hygiene and general mode of life of his patients be properly supervised for a long time after they leave the hospital.

Following surgical operations, post operative dressings have a great deal to do with the ultimate results. While it is perfectly true that in clean laparotomies the end result depends very largely upon the quality of work done in the operating room, the same statement does not hold good in pus-laparotomy work or in operations on other parts of the body. In the latter cases the operation can be spoiled by poor after treatment and unskillful dressing. I firmly believe that today there are more good operators in this country than good dressers and it is a subject sadly neglected in most of our medical schools and in many of our surgical hospitals. The work is al-

1. Ochsner, Edward H.: *Surgery, Gynecology and Obstetrics*, January, 1909, pp. 84 to 88.

together too often left entirely to an unskilled and untrained interne. During his medical course he has spent hours and hours studying theories of rare and obscure diseases, theories which may have to be discarded next year, and has spent very little time in learning the science and art of surgical dressing. I know of no surgical operation that requires more skill than the proper dressing of a resected knee, for instance, and I have known a number of resected knees go wrong because of unskillful dressing.

One could duplicate such illustrations almost indefinitely, but my purpose is simply to call attention to the great need of keeping always in view the question of morbidity—the question of getting the patient actually well instead of half well. It is our mistakes which become the stock in trade of the quacks and the surest way to do away with quacks and quackery is to do uniformly good work ourselves.

Much the same problems confront us in surgery that confront us in all other departments of medicine and also in ordinary life. In the last fifty years the mortality rate in Chicago has been reduced from thirty-seven per thousand per annum to fifteen per thousand per annum. In the registration area of the United States during the fifty years from 1851 to 1901 life expectancy has been increased from 35.3 + to 47.6 + (² and ³.) If the same proportionate rate of increase has continued since 1901, the average life expectancy at the present time would be a little over fifty years so that every child born in the year 1916 may expect to live on an average of at least fifty years as against 35.3 years sixty-five years ago. But how about the average health and well being of the average individual? Has this correspondingly increased in the past sixty-five years? While it is impossible to collect accurate statistics on this point, it does seem to me that the health and well being of the average individual has not improved correspondingly and this in part at least because we have paid much more attention to the prolongation of life than to the problem of making the life of those who have been saved from death more comfortable, and of raising the general average of health of our citizens. I do not think that this is nearly as

good as it should be, or as it can be made to be. In proof of the statement that there is altogether too much ill health among our people, I need but call your attention to the large percentage of rejections in our recruiting stations for the army, where presumably only healthy young men apply; the large number of rejections for life insurance; or the statistics compiled by school physicians; if still in doubt, I ask any well-trained physician to stand on one of our busy street corners for fifteen minutes and watch the crowd in its mad rush. He will agree with me, I am sure, that men, women and even children in perfect physical health are not nearly as numerous proportionately as they should be. One might paraphrase the old scripture saying, thus, "What does it profit a man if he live many years and is more or less miserable and more or less useless most of the time?" I believe most of this can be overcome if, in addition to paying attention to the big things in medicine and surgery, we pay more attention to the little things and learn better how to relieve patients of their minor ailments, which are so destructive of comfort and general well being. Our reward will not only be measurable in dollars and cents, but in the satisfaction of having helped the average citizen to much greater comfort, happiness and individual efficiency.

2155 Cleveland Ave.

DISCUSSION.

DR. LAWRENCE RYAN agreed with the essayist in regard to abdominal conditions, but one could apply equally well what was said to cranial conditions, to intracranial conditions, to intrathoracic conditions and also to peripheral conditions. For instance, there is, no line of work that requires more careful asepsis, preparation, technique, and after-treatment, than bone and joint surgery. If we have anything to be thankful for to Mr. Lane, it is that one thing. He taught us what we knew very imperfectly about bone surgery and joint surgery. It took a great deal of courage for one to criticize his own work, and it required a very different sort of courage to come before a medical or surgical gathering and tell of one's failures and why they were failures. He thinks that is largely the cause of our lack of statistics and of literature on the subject of morbidity.

As to teamwork in the hospital and in the operating room, he would like to go one step further than the essayist, and say teamwork ought to begin at the time when examination begins. If the case is one that requires a medical examination, or supervision, have it examined medically. If it requires an examination which will involve some of the specialties, then a specialist should be called in. He thinks

2. Gore, John K.: Paper read before International Congress of Actuaries.

3. Rogers, Oscar H.: Chief Medical Director of the New York Life Insurance Co., personal communication from.

that is what we are coming to, a more efficient line of teamwork than we have been having heretofore. There is no question about the value of teamwork.

The reporting of cases as they come is something that very few men do. About two years ago, Gerster, of New York, reported a series of cases before the Chicago Surgical Society, not of brilliant recoveries after gallbladder operations, but of failures. Very few practitioners do that. He recalled years ago of hearing a very animated discussion as to the proper treatment of acute general peritonitis. Christian Fenger at that time was presiding and left the chair to make a few remarks, and although they were not complimentary of his work, still he said, "Gentlemen, I have operated on eleven cases, with ten deaths." Very few practitioners are willing to have such a statement appear in print or make it at a medical gathering, and that is where the trouble lies with most of our statistics as regards morbidity.

DR. A. J. OCHSNER spoke about that portion of work which the hospital assistant has to do in connection with the morbidity of the patient. In the early days of hospital assistantship, the interne was impressed with the idea that his training must be as thorough as possible; that he must have a month or two in this department; a month or two in that department, and so on, and in that way get the greatest possible grasp of the methods that are employed in the institution. As a result of this, the patient was constantly under the care during his after-treatment of young men who could not possibly become as familiar with any of the definite methods of the chief, consequently after the patient got through with his operation he was in the hands of an inexperienced experimenter, so far as the hospital interne was concerned, and he believed that that is one reason why the after-treatment in so many instances leads to a certain degree of morbidity, and that the plan of hospital service must ultimately be the German university plan of having one chief for one assistant, so that the assistant learns the methods of that chief, and then if he has another chief later on he must have him for a long time so that there will be established in each department a definite, thoroughly planned, systematic, after-treatment.

DR. AIME PAUL HEINECK believes that morbidity in surgical conditions can be lessened very materially by accurate diagnosis and by timely operating. He is convinced that morbidity to some extent is dependent upon delay in operating and upon ignorance from a diagnostic standpoint, as well as from an operative point of view. If we operate upon cases of appendicitis before complications are developed, we have a comparatively easy operation from which we can expect a complete and early recovery. If we operate upon cases of ectopic pregnancy in the early stages, we have a comparatively easy operation from which we can expect a complete and early recovery. Accurate diagnosis is essential. Another thing of great importance is rapidity in operating and simplicity of technic. There should be no needless manipulation of the tissues. He believes the morbidity of abdom-

inal operations has been lessened a good deal by abandoning irrigation of the peritoneal cavity, and by understanding the importance of peritoneal denudation. In operating for inguinal hernia, it is advisable not to twist the sac because in doing so the urinary bladder may be drawn into the sac and included in the ligature which surrounds the sac or may be punctured by the needle which is used in suturing the sac.

Another point of vast importance is to give patients after operation rest, mental, physical and emotional. In operations of some magnitude the patient is given the undivided attention of one or two nurses, if possible.

DR. OCHSNER, in closing, agreed with Dr. Heineck that patients after undergoing major operations needed rest, both physical and mental, for four, five or six weeks, and they ought to be placed where they can get it and not be annoyed by visitors, by household affairs or by children.

HEALTH LEGISLATION IN THE LAST SESSION OF THE LEGISLATURE.*

W. F. BURRES, M. D.

Representative Twenty-fourth District.

URBANA, ILL.

The bill of rights, a part of the constitution of this state, carries with it so much of human independence that when we come to enact legislation which has to do with control of the rights of the individual, we meet a condition which is hard to confront. With our preconceived ideas of independence: that every man has a right to think, eat, and drink as he pleases, and employ whom he pleases to treat his family when sick, to give whatever remedy he may have heard of, it must become apparent, even to the novice in legislative work, that to get good health legislation, much less good medical legislation, is no boy's job.

In the first place the matter of writing a bill so that it will stand the test of the courts, is a matter for some consideration. Considering the course of a bill through the various committees, then to first, second and third readings, its final passage through the House, then the same routine in the Senate, with all the opportunity for floor amendments, its approval by the attorney-general and finally to the governor—medical men must see at a glance that they must create a state-wide demand for a law before it will have much chance for passage.

It is the purpose of this paper to call attention to the work of the Forty-ninth Assembly toward

*Read before Champaign County Medical Society.

this kind of legislation. The bills introduced which were directed to health legislation, had consideration, which has not been accorded to it in previous sessions. We will not go into detail as to the bills which became laws, but simply call attention to some of the laws as passed.

The law to prevent fraudulent advertising, is one which if it shall be held good by the courts, will be of great good to the state at large. Last session a bill was introduced which put the penalty on the publisher. This was not right as it might work a hardship on many honest publishers. This session passed the bill which makes it criminal for the person who offers the advertisement if he knowingly makes a fraudulent statement either as to goods or services, and fixes a penalty of sufficient severity to be felt. If this bill shall be held valid by the courts, we may see much good come from it.

The law which compels all lying-in hospitals to report to the State Board of Administration and permits that board to inspect all books and records, is a bill which was the outgrowth of the Home-finding Committee work, and will, I think, be of much importance. The reports to the Board of Administration instead of the Board of Health was, in my opinion, a wise provision in this law.

We have for a number of years felt that there were some doctors in the state whom we tried several years ago to favor by exempting them under the old law. When some of these evil-doers were caught they could be fined or imprisoned, but they paid the fine and came up smiling with a certificate which the Board of Health was unable to revoke. We passed a law amending the practice act so as to make any man amenable to revocation, no matter how long ago he graduated. This is one of the things which will help the Board of Health in getting rid of some men who could not be controlled in any other way.

A law providing measures for the prevention of blindness is one of the new laws directly pertaining to medical legislation. When we consider the large number of cases of blindness which might be prevented by proper care of the new-born, it would seem that this law might be of much good, not alone as a humane measure, but from the economic standpoint as well. The support of the blind by the state is a tremendous expense. The cost per capita per year in some of the institutions

running nearly \$300.00 and the number gradually increasing.

The thought implied here would naturally lead up to the mention of another bill which became a law; that is for the detention of diseased prostitutes, that they might be cured, or at least kept from their usual habitats during such times as they might convey infection. It is somewhat problematical of course as to the good this bill will do. It is worth trying.

Another law which will bear mention in this connection is the law known as the abatement and injunction act. Under the operation of this law it is possible to close places of prostitution for a year and thus get rid of the evil in a community. I do not know that this kind of legislation will be of great benefit, but surely any thing which will eliminate even a small percentage of the social evil is to be welcomed by society. The dire results of venereal disease from both the social and economic standpoint, if not a grave sociological question with far reaching effect on civilization, made the discussion of this bill before the House one of more than ordinary interest. It is well to note that your medical representatives were strong in support of the measure, how wisely time will only tell. Let us hope the action will be fully justified.

The vital statistics law was one desired by the secretary of the board of health. I am not sure that it is all that is to be desired, but it certainly can be no worse than the method pursued in this state for the past decade. I have had much to do with Dr. Drake, the present secretary. He is a veritable human dynamo. I predict that if the ends secured by the new law are not satisfactory, it will certainly be no fault of the present secretary of the board. It is well to say here that Dr. Drake was of great aid to the legislative committee and to your legislative members in securing much of the health legislation which passed the last session.

It has been suggested to me that inasmuch as we have in all counties a states attorney and county judge who must of course be lawyers, the superintendent of schools who must be qualified as a teacher, also the surveyor who must have some qualifications as an engineer, that it might be well in the future to make the coroner of the counties outside of Cook, the health officer of a county with certain powers as to gathering vital

statistics, and with full power to enforce quarantine and do all the things required for health preservation. While we could not specify by law that he be a physician, we could make the requirements of his office such that he would necessarily have to be one *and pay him for his work*. The thought is worth considering.

MEDICAL DEPARTMENT OF THE UNIVERSITY.

The appropriations for the medical department of the university have always met with some opposition. This was less apparent in the last session than in the previous ones. Since we now have a medical school supported by the state, it is the duty of this society to accord it our unbounded support.

Perhaps the fact that many men received their medical education at some other than a state school has done much to engender a feeling of independence as to our actions in our professional lives. We have felt that we secured that education at a private institution, paying for it ourselves, that the knowledge we possessed was our own private affair and property and that the state had little to do with how we managed our affairs. If in the future the graduate in medicine feels a certain indebtedness to the state, it will beget the feeling and sense of gratitude that the state has some right to say how that learning and skill shall be best directed for the public good. To be more concise, I think the state medical school will be the open sesame to better state medicine.

The public, as the taxpayer, will feel that it is to a certain extent sponsor for the medical man and will regard him more a part of our institutions rather than the independently educated individual who has too long been considered merely a mercenary personage.

When that condition is fully understood the doctor will become a potent factor in the matter of state government so far as health matters are concerned.

It may not be out of place here to remark that while the state is doing this, it behooves those in charge to see that nothing is left undone to convince the law-makers that they have made no mistake when they took this step toward medical education. I am sure my friend, President James, will pardon any seeming suggestions when I say that we should be as active in teaching medical preparedness in this branch of the univer-

sity as is sought to be done on the drill grounds of the military department. If we are to have our young medical men prepared as they should be, it is important that the medical branch of the university, as soon as possible, afford all the opportunity for instruction in tropical and camp diseases, in medical and sanitary engineering, and especially in preventive medicine.

Let us as a society in our discussions make it known that we expect more of a state school than we will of the privately conducted one. No better thing can be done than for schools of other countries to know that in America the young medical man is being trained along the lines of medical preparedness. We must readily understand that the military department of the country will suffer greatly if its medical arm should be weakened. Hence, I mention that the appropriations made by the last session were liberal not only with the medical department of the university but with the State Board of Health for other uses which might be necessary for the safeguarding of the public health.

House Bill 592 was one which threw a scare into some of my friends when they found I had introduced the bill in the House. This was one of the many bills proposed by the Committee on Efficiency and Economy. I knew of the faults in this bill when I introduced it, but thought perhaps it was better for a medical man to handle the bill than some one who was not familiar with the faults which it contained.

It is only necessary to say the bill never was reported out of committee. I do not censure the people who wrote the bill. I do not think they considered it as fully as they would in the future. It will be impossible to ever get a law providing for a department of public health which puts all the power into the hands of an appointee, and relegates the doctor to a mere examining board with little else to do, and that subservient to a political appointee. Inasmuch as the bill did not pass it will be better to call attention to it very slightly in one particular, and I quote one section alone which of itself should be sufficient for consideration in this paper. Namely this: In one section making certain exemptions this clause appears in the bill:

"Any person shall be regarded as practicing medicine, etc." * * * *

"And this article shall not apply to surgeons of the United States Army, the United States

Navy or the United States Public Health Service in the discharge of their official duties, or (now listen) to any person who administers to or treats the sick or suffering by *mental* or *spiritual* means, without the use of any drug or material remedy."

Think of putting the faith healer on a par with and in the same class as the United States Army surgeon. I hope that if the bill is ever introduced again it will have careful consideration of some medical men before it gets to a committee and have such objectionable features as these eliminated.

The Optometry bill passed by merely one vote. Suffice it to say that none of the medical men in the House voted for it.

The laws providing for first medical aid on railway trains, for the proper ventilation of factories, for the prevention of poisonous fumes in factories, the "Wash-house" bill compelling factories to afford the employes a place where they might wash before leaving the factory or shop, after a day's work, also the bill providing public bathing beaches in certain localities in Chicago, the bill providing for better playgrounds, the sanitary school law, the right of townships to levy tax for park purposes, and the law granting the right to levy tax for tuberculosis sanitariums, while not medical legislation in the strict sense of the word—were all laws along the line of health legislation. It should be said that most of these bills which became laws had the support of nearly all the members of the House. No law was passed that I think of that will be in any way inimical to the safety or health of the public.

In conclusion let me say this: Perhaps I may say it more freely, as this kind of a paper is not intended for the lay press. I feel free to say that the treatment accorded a member of the legislature who is a physician, was all that any gentleman could expect. I found members universally considerate, willing to hear what might be said upon medical subjects, not prejudiced as many seem to believe, but rather anxious to know what we wanted. I would not advise any man to attempt to deceive members relative to medical legislation, for we have shrewd lawyers who are quick to detect any bill born of prejudice, or jealousy and equally quick to resent it. The fairness of the speaker of the House, Mr. Shanahan, toward all legislation was particularly marked in his attitude toward the doctors and medical legis-

lation. You gentlemen are indebted to many of the members whom I would like to name in person if it were possible, and all that needs to be done in the future to secure good health legislation is to convince the legislature that the sole purpose of such is for the general good of the people of the state and not for personal gain and in my opinion you will get all the good medical legislation that may be desired.

CONCERNING SOME FORMS OF RENAL INFECTION.*

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Among the infections of the kidney and renal pelvis are three types which are conspicuous by the severity of their symptoms, by the still disputed etiology and by the difficulty which the practitioner meets in the interpretation of their symptoms. I have reference to the so-called pyelitis of pregnancy, the pyelitis of infants and the acute unilateral hematogenous infection of the kidney.

When speaking of pyelitis of the gravid woman, one might do well to differentiate between pyelitis of pregnancy and pyelitis in pregnancy; the latter implying the flaring up of a previously present chronic condition, the former designating a new process which had its origin in some abdominal condition more or less due to the pregnancy.

I believe the majority of these cases to be of the second type; I believe that in many of them upon close investigation a history of chronic intestinal trouble, or acute infectious diseases in infancy or early childhood may be elicited and that more or less vesical distress, such as frequent or painful urination, oliguria or polyuria during and after puberty will form a part of the anamnesis.

If pregnancy occurs in such a woman, not one but several factors working together, may produce the picture of acute pyelitis. I do not believe in the theory of the pressure of the pregnant uterus alone, nor of the parts of the fetus upon the ureter, nor in the obstruction of the free flow of the urine from the kidney, caused by distortion of the vesical portion of the ureter

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or by the physiological edematous congestion of the ureteral orifice and the lower part of the ureter; but we may assume that, pressure from without, edematous swelling within, and kinking of the ureter together, will produce retention of urine in the renal pelvis, and that this stagnating pool offers an ideal breeding place for pathogenic germs, which might have been there before or have entered after the obstruction has occurred. And it does not make any difference as to the severity of the process whether we agree on the urogenous, hematogenous, or lymphogenous route, as long as we are aware of the fact as such, and are using the knowledge of the source of the infection for the relief of the condition and for the prevention of a recurrence.

Thus we shall have to look for the focus, which might be in the bladder, in the intestines—coprostasis or enteritis—pus pockets in tonsils, in a nasal sinus at the dental roots, in the middle ear or in a chronic appendix.

The symptoms of both conditions—the pyelitis of and *in* pregnancy—are the same, but the prognosis and the further course of the disease might be somewhat different.

Without a palpable cause the patient is suddenly attacked by severe pain referred to the abdomen, usually accompanied by a slight chill, nausea and vomiting; the pain is persistent and finally localizes in the bladder or in the lumbar region or in both. The temperature rises as high as 104 degrees and the patient feels and looks decidedly ill. Urination increases in frequency, becomes painful and oftentimes the calls for relieving the bladder are almost continuous. The chill and rise of temperature is repeated and the patient has recurrent pains in the region of the kidney.

The blood examination shows the typical picture of a suppurative process, an unusual large amount of polymorphonuclear cells—85 to 90 per cent.—the urine is usually acid, containing pus in varying quantities.

The abdominal muscles in the region of the affected kidney show marked rigidity, and pressure in the costovertebral angle causes pain. The kidney, if palpable, is found enlarged and sensitive to touch. By double catheterization of the ureters urine mixed with pus is secured from the infected kidney, while the urine from the other side might be perfectly normal or show a

larger number of granular, renal, epithelial cells—the result of the elimination of toxins on this side. The urine of the infected kidney also shows the pathogenic germs which in the majority of these cases is the colon bacillus, in others a staphylococcus and rarely the proteus.

Without a careful urine examination, particularly of the specimen obtained by catheterization of the ureters, pyelitis might be confused with typhoid or appendicitis. The latter might be erroneously diagnosed in those cases in which a temporary complete blocking of the ureter of the affected side exists at the time when the bladder urine is taken for examination.

Of great differential diagnostic value in such cases is the pain along the ureter of the diseased side, produced when the patient is urged to bear down or to attempt an evacuation of her bowels. This symptom is never observed in appendicitis.

In favorable cases—especially those of the first group—the temperature gradually drops towards the end of the first week and becomes normal within another week. Excretion of pus and germs, however, lasts for a considerable period after all acute symptoms—fever, pain and tenesmus—have subsided.

In about one-third of these cases premature labor occurs, about 40 per cent of the women going on to normal labor at term.

In type one the infection usually subsides in due time, in the second type—chronic pyelitis flaring up during pregnancy—the renal pelvis never becomes normal. This is not surprising when we consider that the infection being of long standing has oftentimes produced more or less permanent tissue changes in the renal pelvis and calices and lesions in the parenchyma. Thus we shall see women of the first type, at least most of them, going through further pregnancies without a recurrence of the former trouble, while those of the second type, not all but many, after seemingly having recovered will be taken down with acute pyelitis in nearly every subsequent pregnancy.

Regarding the management of these cases the views are varying from ultra conservatism to extreme radicalism. Unquestionably a large percentage may be safely tided over the critical period by conservative measures. If the temperature be not persistently high, if the general

condition of the patient be satisfactory, if the pain be not too severe and lasting and premature labor not imminent, it is permissible to resort to the well-known internal medication together with external applications, and changing the patient from the recumbent into a more upright posture, a procedure which always facilitates drainage downwards. Urotropin and salol and large quantities of fluids in conjunction with diuretics are still our mainstay.

Urotropin to be efficient must be given in much larger quantities than is customary. Doses of 15 to 20 grains repeated four to six times in 24 hours are in order. It should, however, be remembered that formaldehyde is only split up in an acid urine and furthermore that some individuals fail altogether to split up formaldehyde—the active principle of urotropin.

The nonappearance of formaldehyde in the urine can be established by the Burnam test and in this way the failure to respond to urotropin medication in some cases is readily explained. Urinary antiseptics are also inefficient in pyelitis of intestinal origin. While they are capable of inhibiting the growth of bacteria in the urinary tract, they do not influence the focus in the colon and in the tributary lymphatics. Urotropin should be given in refract doses for quite a while after the manifest symptoms have completely disappeared—at least as long as the apparently normal looking urine contains bacteria and even beyond that time.

The quickest way to relieve the distressing symptoms and the one indicated if the medicinal treatment fails, consists in passing a catheter to the pelvis of the affected kidney to drain it thoroughly, to rinse it with 1 per cent. dioxygen solution until the fluid returns clean and then to instill a 2 per cent. silver nitrate solution, whereupon the catheter is withdrawn. Where there is a large amount of retention in the renal pelvis with considerable pus, the catheter should be left in place for a day or two, and the antiseptic instillations repeated as often as the individual case may require.

There is no danger of inducing premature labor by this procedure as some are inclined to believe; on the contrary I have prevented it in this way. Induced premature labor is only justifiable in the interest of the mother if all these methods should fail to relieve the pain and the

fever. A cure is thereby not effected and the treatment of the pyelitis must be continued after delivery. Such patients should be strongly advised not to become pregnant again until all traces of the disease have disappeared.

Pyelitis in children is an eminently female disorder. According to the different observers the percentage varies from 10 to 25 per cent. for boys and 75 to 90 per cent. for girls.

Pyelitis—both acute and chronic—is more commonly allowed to remain unrecognized than any other disease of infancy and childhood, for in its polymorph clinical course it does not differ sufficiently from other acute and chronic infections as to be readily recognized from this viewpoint alone.

A positive diagnosis can nearly always be made by a careful urine examination. Unfortunately, this is frequently neglected when children develop fever of obscure origin, or show evidence of failing health and loss of weight.

In the acute cases these children develop high fever, vomiting, diarrhea and convulsions, the latter misleading one to assume meningitis. Chills are not frequent in infants. The high fever assumes a remittent or intermittent character, and typhoid or malaria may be erroneously diagnosed. This error might be easily committed in older children who very often have non-febrile periods of several days. Vomiting, muscular rigidity and pain over the right half of the abdomen, might suggest appendicitis. However, there is always more or less vesical distress associated with pyelitis, manifesting itself by frequent urination and sometimes in chronic cases by incontinence of urine. Indeed incontinence appearing after a period of normal vesical control should point to the possibility of a pyelitis as its cause.

The urine of these little patients always contains macroscopically or at least microscopically blood and pus and in proportion to its quantity more or less albumin. The reaction is mostly acid, except in the few cases in which urea-decomposing bacteria are back of the infection. Most commonly we find the colon bacillus in the stained centrifuged sediment.

The ascending route taken by the bacterial invasion seems to be the favored one in infants younger than one year, while after this period

the infection occurs more frequently by way of the lymphatics or the circulatory system.

Most likely the bladder in diaper children becomes infected through colon-bearing fecal matter, which after soiling buttocks and linen reaches the vulva urethra. This mode of infection is one of the strong arguments for an early control of defecation in infants. It is surprising how quickly children not older than a few weeks can be trained with the aid of a glycerin suppository to have a regular morning and evening movement in a suitable vessel.

Invasion of the renal pelvis through the lymph glands or circulation has been observed to complicate or follow infections of the respiratory apparatus like influenza, diphtheria, whooping cough, and tonsillitis. Intestinal disorders or acute exanthematic diseases like scarlet fever, typhoid and smallpox, are conspicuous in the list of etiological factors.

Most children, if the real nature of the ailment is recognized in time, can be cured by a thorough "autoirrigation" with copious draughts of water, in others the addition of alkalies will be necessary in order to completely neutralize the urine. Most serviceable is potassium citrate in doses of $\frac{1}{2}$ to 1 drachm and more a day in divided doses. The only guide to the efficiency of the dosage is the reaction of the urine, which should be made and kept alkaline until all symptoms have disappeared. If citrate of potassium disturbs digestion—which is often the case when larger doses are indicated—sodium citrate or potassium bicarbonate may be substituted.

Sometimes both measures—autoirrigation and the alkali treatment—fail. This is usually due to the presence of the proteus bacillus in pyelitis and in these cases salol or urotropin, or a combination of both drugs, will be found useful.

Urotropin, however, while very efficient, should be given cautiously to infants, not more than $\frac{1}{2}$ -grain every four hours to begin with.

If all these procedures should fail, the administration of vaccines will be found to be a very efficient method to check the constitutional symptoms though it might not be a cure of the disease. Pain and fever subside, the child will put on weight and be seemingly well, but the urine will be found to still contain pus and bacteria, which then, however, seem to give way more

promptly to the subsequent administration of urinary antiseptics.

Speaking of acute unilateral hematogenous infection, I have not in mind a condition which is caused by toxins or bacteria of a general septicemia or pyemia and which, as a rule, attacks both kidneys.

I am referring to an infection in one kidney only, caused by the plugging of a terminal renal vessel by a small embolus which holds the pathogenic organism. This condition starts from one or a few single foci in the cortex of the kidney and from there spreads through lymph spaces and blood vessels to other parts of the organ.

It appears either as a diffuse inflammatory process without tissue destruction or it terminates in abscess formation. These abscesses are miliary and located in the cortex just underneath the capsule. Sometimes they grow by coalescence and breaking through the capsule result in a perinephritic abscess. The bacteria producing this type are the staphylococcus pyogenes albus and aureus and the streptococcus pyogenes. (Cunningham.)

The first type of the disease has the character of a diffuse inflammatory process, which, while pervading the renal parenchyma, does not lead to focal abscess formation; I feel inclined to call it "kidney phlegmon." The condition not being caused by pyogenic germs but by the colon bacillus, the cortex of the kidney and also the pyramids show on sections irregular areas of congestion, red patches, which as the acute process subsides gradually become paler.

It is important for the practitioner to be familiar with the symptomatology of these two types for the purpose of the earliest possible diagnosis, especially in the second type. The patients of this class present signs of profound toxemia. After the initial severe chill the temperature rises rapidly and high, the pulse running to as much as 150 a minute, leucocytosis to as much as 40,000. Lumbar pain and muscular rigidity on the affected side are always present—very distinct and, therefore, pathognostic for the disease. The high leucocytosis, fever and abdominal pain might lead to the erroneous diagnosis of appendicitis or empyema, especially so because the urine rarely contains sufficient pathologic material to point to the seat of the trouble or to reveal the seriousness of the lesion.

However, the lumbar tenderness and rigidity should help to avoid this error.

If not relieved within a few days, the toxemia overwhelms the patient and death ensues in delirium. In early nephrectomy we have the only means of removing the septic material and saving the patient.

The symptoms of the diffuse inflammatory type are the same as of the suppurating one, but the difference lies in the lesser degree in which they manifest themselves and in the more pronounced urinary finding.

In the suppurating type very little, if any, pathologic material passes through the tubules which are obstructed *within* by septic products, and compressed from *without* by inflammatory infiltration.

Renal decapsulation is indicated in the inflammatory type, with or without incision of the parenchyma as might be deemed necessary in the individual case.

5 North Wabash Avenue.

THE CONSERVATION OF LIFE IN THE PROSTATIC.*

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To remove the prostate gland is a comparatively simple operation to one who has some degree of surgical skill and who thoroughly understands the anatomy of the perineum, the prostate and the bladder. To have your patient live and have a functioning bladder is quite another proposition.

I have no thought of entering into the etiology, pathology or symptomatology of the senile hypertrophied gland, nor do I propose to discuss the advantage of the supra-pubic over the perineal route or vice versa.

I, however, wish to call your attention to some points that will help to lower our mortality rate in this class of cases. By the very nature of the condition we are not very often called upon to treat these cases under the age of 60 years and most frequently between 65 and 75. We have an individual who is undergoing senile decay and we are called upon to give relief by major surgical interference.

Infection of the bladder is the one thing above

all that we want to avoid, and yet this is not always possible. However, this should not deter us from making every effort to prevent it. The primary examination should be done under the most strict aseptic conditions. I want to emphasize this as only too frequently have I seen these cases so badly infected by the first catheterization that their doom was settled then and there.

Improper instruments, faulty technique and disregard of asepsis, together with the lack of prophylactic remedies against infection increases the mortality percentage by leaps and bounds. I have reference particularly to those cases where the physician is called in an emergency to give relief to an over distended bladder. There are very few of these cases that will permit of catheterization with the ordinary catheter and usually considerable traumatism is produced by forcing the catheter to glide over the obstruction at the neck of the bladder to the point where urine will flow.

By this time, frequently, the eye of the catheter is plugged by a clot of blood, more manipulation is indulged in and more trauma produced. The hemorrhage from such trauma is many times of serious moment, the bladder filling with clots causing constant straining and tenesmus and the patient is brought to an emergency operation under unfavorable conditions.

Again, we may have as the result of this trauma effectual plugging of the neck of the bladder from the edema and inflammatory reaction which necessarily calls for repeated catheterization to relieve the urinary distension.

Under my present method of operating, I am convinced that the mortality rate has a direct ratio to the absence or the severity of the infection in the bladder. A clean bladder, a low mortality rate; a badly infected bladder, a high mortality rate.

Inability to empty the bladder or a large amount of residual urine calls for repeated catheterization or a self-retaining catheter. The former means sooner or later an infected bladder. The latter is tolerated by a very small percentage of patients. The catheter produces constant discomfort and irritation which soon leads to infection.

Then we have the class of cases who have never been catheterized or instrumented and yet have an infected bladder due to the chemical irrita-

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tion of the bladder from the decomposition of residual urine and the ever present colon bacillus.

In all of these cases two problems require our consideration. First, the relief of urinary distress, and second, the restoration of the functions of the bladder. In my mind the first condition is best met by the supra-pubic cystotomy. Constant drainage of the bladder can only be done by the cystotomy or by the self-retaining catheter. I have already stated that few patients tolerate the latter. They are no more free to go about than with the cystotomy and are quite as uncomfortable so far as caring for the urine is concerned. Forty-eight hours after cystotomy the patient suffers little or no discomfort except the care of the urinary discharge. The bladder is at rest, the patient eats and sleeps normally, all back pressure is removed from the kidneys and the bladder can be easily irrigated and cleansed without distress to the patient, and quite as important, one step in the removal of the gland has been accomplished and the route sealed from infection by the presence of granulation tissue.

There is no definite time to complete the operation except to wait until the condition of your patient warrants it. My plan is not to hurry the second step. In one case I found it necessary to wait two months before I felt safe to undertake the removal of the gland.

Brought to the operating table under favorable conditions we still have the danger of the anesthetic upon the circulatory, respiratory and renal systems and with an unfavorable case the outlook is gloomy indeed.

Some months ago I began the use of novocain and supraparenin locally. For this I claim no priority, merely a report of what I have been able to accomplish in a satisfactory manner to myself and patient. Up to the present time I have successfully used it in ten cases. I use a solution of 0.5 to 1 per cent and where a cystotomy is done only the tissue is injected.

In removing the gland I use the parasacral injection and inject about 40 c.c. in either side as well as the supra-pubic tissue. In one case I used a 5 per cent. alypin solution in the bladder, but cannot say it was of any benefit. By this method I have never found it necessary to inject the gland itself through the supra-pubic wound as some advise.

Control of the hemorrhage at the time of the

operation is best controlled by the placing of a Hagner bag. Post-operative hemorrhage is most frequently due to the presence of blood clots in the bladder, blocking the tube and causing the patient to attempt their expulsion by contracting the bladder. This is guarded against by closely watching the tube and removing any clots that may form.

Bleeding from the incisions in the anterior bladder wall will occasionally be met with and should be controlled by ligatures. Suppuration of one or both testicles is not uncommonly encountered, particularly in badly infected bladders, and is a factor in the mortality rate. Of late I have been attempting to prevent this by placing a ligature around the vas deferens as the first step in the operation. This is easily and quickly accomplished under local novocain injection and is of no consequence from the patient's standpoint.

The post-operative treatment of the bladder and of the patient is very important. The bladder should be irrigated once or twice daily depending upon the severity of the bladder infection. For this I prefer the solution of the oxy-cyanid of mercury. The patient should be gotten out of bed as soon as the tube is removed and while in bed should only be in the recumbent position during the sleeping hours.

My conclusions from the standpoint of reducing the mortality in these cases are:

First: That suprapubic cystotomy is to be preferred to repeated catheterization or the self-retaining catheter.

Second: That suprapubic cystotomy and prostatectomy can successfully and safely be done under local injections of novocain-supraparenin solution.

Third: That in the employment of conclusion one and two in the hands of competent operators the mortality will be reduced to a minimum.

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A FEW OBSERVATIONS ON EPILEPSY.

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In daily association with chronic epileptics one cannot help but notice that certain characteristics stand out prominently:

1. They are usually stout, well-nourished, and have large appetites.

2. They are chronically constipated.

3. They have few diseases outside of gastro-intestinal tract, and if they have any disease or injury, there are no convulsions during the period of illness, nor for some time afterwards.

4. Epileptics, as a rule, do not develop bed-sores, and lacerated wounds seldom become infected.

5. There is a sour odor to their breath during the convulsion.

6. They are stubborn and quarrelsome.

7. Three-fourths of the disturbances occurring on the wards are caused either by the epileptics or through them.

8. They have a peculiar, monotonous or drawling voice, which is almost diagnostic. This is found in chronic epileptics and may be due to mental change.

9. Their facial expression is usually dull and sullen.

10. Many epileptics resemble the catatonic dementia praecox patients, who also may have epileptiform and hysteriform episodes. It is possible to have praecox complicated with epilepsy.

Etiology. Not a great deal is definitely known regarding the etiology of epilepsy. A consideration of the convulsions in general seems to indicate that there are different groups of cases. Heredity (which plays an important part in many cases), infection, intoxication, traumatism, metallic poisoning, syphilis, and reflex factors have all been assigned as the cause of the convulsions. The more recent trend of opinion, however, is that there is, in idiopathic epilepsy, some metabolic defect.

Other views upon the auto-toxic causation of epileptic fits are Haig's uric-acid, Krainsky's carbamate of ammonium, Donth's cholin, and Ceni's cytotoxins. Of none of these is there proof. The evidence, such as it is, points to these substances as the *effect* rather than the *cause* of the epileptic seizures.

My observations were made upon chronic epileptics at the Jacksonville State Hospital, Jacksonville, Illinois. I have had the urine of one hundred and forty epileptics examined, principally for the sodium chlorid and the calcium salts. The urine was collected at various times, by the catheter, during the convulsion and

shortly after the convulsion. After analyzing these urinary reports I came to the following conclusions:

1. When patients are not having convulsions the percentage of chlorids was increased in the urine. (In 62 per cent. of cases; normal in the rest.) The normal percentage excreted in a healthy person is 0.08 to 1 per cent. In nearly every case it was above normal, and in a number of cases it reached almost 2 per cent. (Purdy's method.) The calcium salts during this period (in 95 per cent. of cases) were more abundantly excreted. The specific gravity ranged from 1013 to 1028, with acid reaction.

2. During the convulsion (specimen drawn with catheter) the calcium salts excreted were slight in amount or absent, and the percentage of sodium chlorid was diminished. The convulsions varied according to the percentage of calcium and sodium chlorid in the urine.

3. About four hours after the convulsion, when the patient was able to be up and about, the percentage of sodium chlorid rose to nearly normal, and the calcium salts began to reappear. The specific gravity of the urine also went up.

4. When the percentage of sodium chlorid in the urine was normal or increased, the calcium salts were also increased; when the percentage of sodium chlorid was decreased the calcium salts were, in nearly all cases, absent, and in the few remaining cases in but a slight degree.

It was also noticed that the acid ammonium in the urine, in most cases, followed the same course.

Blood. While in the convulsion, the blood was thicker, flowed more slowly, was darker in color, coagulated more rapidly, formed a larger and firmer clot and did not break up as freely as normal blood. Four hours after the convulsion the blood was lighter in color, thinner, and did not coagulate as quickly, while the clot remained less firm.

I examined the blood of a number of epileptics during the convulsions, and in the inter-paroxysmal stage, and compared it with the normal blood. During the convulsion many calcium carbonate crystals were found, some calcium oxalate, and some phosphate crystals. After the convulsions (about four hours), the percentage of calcium crystals was about the same as it is in normal blood (microscopically).

It would appear from the above that the calcium and sodium salts play a part in epilepsy.

Calcium Salts (Howell's Physiology). "The calcium salts are present in relatively small quantities in the blood, but they are absolutely necessary for contractility and irritability of muscle tissue. When present in quantities above the normal or when in proportional excess over the sodium or potassium ions they cause a condition of tonic contraction that has been designated as 'calcium rigor.'" Again: "A striking experiment which shows the importance of calcium is to irrigate a terrapin's heart with blood from which the calcium has been removed by precipitation with sodium oxalate. In spite of the fact that all other constituents of the blood are present, the heart ceases to beat, and normal contractions can be started again promptly, by adding calcium chlorid in the right amounts to the oxalated blood."

Sodium Salts. "The sodium salts in the blood and lymph assume the chief part in maintaining normal osmotic pressure. Sodium chlorid exists in the blood plasma to the extent of 0.5 to 0.6 per cent., and the normal osmotic pressure of the blood is mainly dependent upon it. The sodium ions have in addition a specific influence upon the state of the heart tissue. When sodium is present in physiological concentration it produces relaxation of the muscle tissue."

It appears that there is a well-marked antagonism between the effects of the calcium and that of the potassium and sodium. The calcium promotes a state of contraction; the sodium and potassium a state of relaxation. Another author says: "The sodium ions have a still further use in the body in acting in combination with the potassium ions in producing a state of relaxation in conditions of tonic contraction of the muscle tissue. Owing to the larger amount of the potassium this has been called 'Potassium inhibition.' The action of the Na and K ions seems to be diametrically opposed to the action of the calcium ions, which bring about a condition of tonic contraction of muscular tissue, or 'calcium rigor.'"

Simon says: "In the contractile function of a cell it is certain that the inorganic elements play an exceedingly important part. The calcium ions are normally present only to a very small extent, but their presence is absolutely necessary to con-

tractility. Another action of the calcium salts in the blood is for the formation of fibrin."

According to M. Binet, calcium salts exert a special influence upon the nervous system, and may occasion muscular contractility. Toxic doses of the calcium salts arrest the heart in systole.

Foster's Therapeutics: "Calcium salts promote constructive metabolism *in small doses*, and destructive metabolism *in large doses*." It is found that the calcium salts are poisonous when not counterbalanced by the sodium and potassium salts.

Halsey, Pharmacology, p. 495: "It must also be emphasized that calcium salts are by no means non-toxic, for animals into which 0.3 to 0.4 gm. CaCl per Kilo have been injected subcutaneously die in a few days as a result of a central paralysis."

Blood. Pugh says that "the alkalinity of the blood is constantly lower in epileptics than in normal persons, undergoes a diminution before the fit, and a still further diminution after it, and returns to the usual level after six hours, excepting in cases in which another fit takes place after a short interval." The alkaline reaction of *normal* blood is exceedingly marked, and is mainly due to the sodium salts which the serum contains.

Campbell, on Treatment: "All the cells of the body dwell in saline fluid." *Sajous:* "Our tissues and cells continue to exert their function in a fluid the composition of which presents the closest resemblance to sea-water," and "the globulins and the albumoses are kept in solution in the plasma by the potassium and sodium salts. Chlorid of sodium when it passes out of the organism in the urine probably assists in the excretion of waste products. This alkalinity is of great indirect importance, i. e., *it enables the blood to carry an adequate quantity of CO₂*, and thus assists it in efficaciously ridding the organism of this gas."

"When the supply of sodium chlorid is inadequate all the functions of the body are hampered, since it is the solvent of serum globulin. The free osmotic properties which the lymph in the tissue spaces owes to the sodium chlorid insures another important function, viz., that of sweeping away in the lymph-current all waste derived from the cells. It is pre-eminently the salt which

maintains the osmotic equilibrium between the tissues and the blood."

A question arises as to whether the sodium chlorid is increased or decreased. By watching epileptics one finds that they crave salt (putting large quantities in their food), vinegar and tart food, such as green apples, pickles, etc. Again, the blood of an epileptic is dense, though we know that sodium chlorid normally keeps it in solution. Can we not, therefore, reason that there may be a deficiency of sodium chlorid? During a convulsion the alkalinity of the blood is reduced, though sodium keeps it normally alkaline; which is another reason for thinking there is a reduction of sodium in the blood.

Again, the blood is dark in appearance, and seems venous, which (as sodium chlorid assists in ridding the organism of carbonic acid gas), is still another reason for believing there may be a deficiency of sodium chlorid in this disease. And, finally, as the retention of sodium chlorid is known to be a factor in the production of edema, and the epileptics I examined did not show any edema, another reason is added for supposing deficiency of chlorid.

Calcium salts. Calcium we know is necessary for the coagulation of the blood, and as blood apparently coagulates rapidly in an epileptic (during status), one might draw the conclusion that there must be an over-supply of this salt. And from the fact that the calcium salts appear in the urine at certain periods, and are absent or slight during the convulsion, I surmise that there is an accumulation in the system. The system is able to take care of them at first; but is not able to do so after a while, and then these salts exert their toxic action and produce the convulsion. After the convulsion the system appears to recover its power, and elimination of calcium salts again takes place. As sodium chlorid is antagonistic to calcium salts, and they are also eliminated in excessive amounts, it leaves the calcium in the body to exert its toxic effects.

Experiments. Iodine is said to be the main constituent of the thyro-parathyroid secretion (there is at the present time no adequate test for the thyroid-parathyroid secretion in the body fluids), and to determine whether there was a deficiency or an over-supply of iodine I gave a number of epileptics, in different groups, thyroid extract in small doses, tincture of iodine in solu-

tion, potassium iodid in solution. Within twenty-four hours all these patients had convulsions.

Toxicity of Epileptic's Blood. Herter, Krain-sky and others succeeded in producing convulsions in rabbits by injecting defibrinated blood drawn from an epileptic during the course of a paroxysm. The more toxic the blood, the greater the convulsions. I have injected blood taken from an epileptic during status, and produced convulsions in cats in about five hours. Blood from the status cases to which was added NaCl did not produce convulsions. In one cat, during the convulsion produced, I subcutaneously injected a large quantity of NaCl solution, and convulsion soon ceased, after polyuria.

In another cat injected with epileptic's blood the following was noted: Cat injected with blood taken from epileptic during convulsion (this was first convulsion this patient had had for ten days, and was short in duration); the cat was very quiet at first, and curled up in cage. Gradually the pupils became contracted; the cat appeared depressed, and its heart beat very rapidly. At times it would open mouth and breathe in a labored manner; and it refused to take nourishment. About four hours after injection co-ordination was not so good, and the cat became more restless; fine and coarse tremors developed, with some jerking of the muscles. Shortly afterwards the cat had polyuria and gradually became brighter.

Believing a convulsion could be produced in a cat by injecting calcium, and not desiring to use any of the decalcifying salts (Cal. lactate), a concentrated solution of calcium hydroxide (lime water) was injected, about an ounce, subcutaneously into the cat's side, with the following result: In one and one-half hours there were noticed jerkings, local spasms, diarrhea, trembling, twitching in front and hind limbs, nodding of head, and a fine tremor running over whole body. (As only one cat was injected with calcium salts it might be possible that the phenomenon was due to other causes than the calcium salts.)

Gastric Disturbances. The writer noticed that during a convulsion, or within twelve hours after a convulsion, the tongues of epileptics are, invariably, thickly coated and their breath foul. Frequently, in passing through the ward, I have examined the tongues of epileptics, and from

their condition have been able to tell whether they had suffered from a convulsion; and was generally able to confirm this by the records.

Bassler, *Diseases of the Stomach*, in reference to epilepsy, says: "Gastric hyperesthesia, gastroparesis, gastric atony and states of habitual constipation or fermentation are common associations with epilepsy."

Parathyroids. The investigations of McCullum seem to indicate that the parathyroids control calcium metabolism.

Thyroid. On giving any patient thyroid gland in normal doses there is noticed an increased output of chlorids in the urine, and a leucocytosis. Roos found that in healthy dogs feeding with thyroid caused an increased excretion of nitrogen, NaCl and phosphoric acid. Parhon, Dumitresco and Nissipesco found in cats and dogs after thyro-parathyroidectomy an increase of calcium in the nerve centers. Brown, *Physiological Principles in Treatment*, p. 380: "It is clear that calcium excretion is decreased by thyroidectomy and increased by thyroid extract."

Epileptics presenting symptoms similar to those found in Exophthalmic Goiter. I have frequently noticed that epileptics presented quite a few symptoms similar to those found in exophthalmic goiter, such as increased size of neck; fast pulse; pulsation of the carotids; tremors; digestive disturbances; irritability; vasomotor disturbances, such as cyanosis and coldness of the extremities. Prof. Jolly has reported several cases of girls in their teens, in whom a goiter appeared shortly before the first convulsion. (Within the last week two epileptics came under the notice of the writer—one a man of thirty and the other a boy of fourteen—both having enlarged thyroids.)

A theory as to the causation of an epileptic convulsion in certain cases:

1. A susceptible person (heredity or acquired.)

2. Shock (psychic or physical). (Most observers agree that emotional disturbance is one of the most common excitants of an epileptic fit.)

3. Disturbance of thyroid and parathyroid function, shown by derangement of chlorid and calcium metabolism.

4. Calcium exerting its irritating influence upon defective cortical cells.

5. Sodium chlorid eliminated, causing changes in blood and stomach secretion.

6. Suspension, temporarily, of the calcium and sodium chlorid antagonism.

Treatment. The treatment should be individualized. As it was recommended that table salt be eliminated from the diet of epileptics, I did so for many months, and without benefit. The patients became noisy, restless, quarrelsome and violent. J. Voisin, R. Voisin and Krantz followed this treatment for five months with thirty epileptics. They found that though the seizures were fewer at first, the patients gradually relapsed into the former state.

Experience with bromids in the treatment of epileptics showed me that although the convulsions were controlled for a time, that ultimately even while under treatment, the convulsions returned, and with greater severity. This result led me to believe that the potassium and sodium bromid controlled the convulsion for a time because the K and Na ions antagonized the calcium ions; but that finally the bromid intoxication precipitated the convulsions.

On the assumption that there is a deficiency in the sodium chlorid and an over supply of calcium salts in the system of epileptics, I found the following method of treatment one of the best to lessen the frequency and severity of convulsions in the chronic epileptics, under my care:

Diet. An absolute milk diet was not adopted as milk does not agree with all patients, and convulsions have been brought on by milk on account of its richness in calcium salts. A diet which was poor in calcium salts, such as meat, fish, fruit and potatoes, was given. Schlöss found that during the meat period the seizures were fewer than before, but during the milk and vegetable period they increased. Convulsions frequently occur after an epileptic has partaken of cabbage, turnips, tomatoes, spinach or rhubarb. Only the quantity of food strictly necessary to the needs of the body should be allowed. The patients are urged to use plenty of salt with their food. (Cohn and Voit have proven that the absence of salt from the diet completely checks the production of HCl in the stomach.) To keep the stomach and bowels in good order HCl (to protect NaCl in the body), and cascara sagrada are given. At times a rectal injection of sodium

chlorid solution is advisable. Tinct. gentian Co. is also given as a stimulant to the stomach.

Enriquez and Grent found that the addition of large doses of NaCl during four months diminished the intensity and number of attacks.

By use of the simple method outlined above, and without the use of any sedative, such as bromid, chloral, etc., it was found that the patients appeared brighter, their health improved, they were easier to handle, and the convulsions changed in character, becoming less frequent and severe.

Status epilepticus. I have frequently brought a patient out of these attacks by hot normal saline solution per rectum.

25 E. Washington Street.

DEMENTIA PRAECOX STUDIES.

AN APPARENT RECOVERY OF A CHICAGO CHINAMAN
FROM BERIBERI AFTER THREE DOSES OF
VITAMINE-CONTAINING EXTRACT OF
RICE POLISHINGS.* †

BAYARD HOLMES, M. D., AND

JULIUS RETINGER, PH. D.

CHICAGO, ILL.

The study of dementia praecox leads into many by-paths. The unique case which we report tonight is the result of following one of them.

There is a peculiar parallel between beriberi and some forms of dementia praecox. The adrenalin reaction in the latter has frequently been called a "vagotonic" symptom, and beriberi is distinctly vagotonic in its manifestations. In the beriberi of infants there is an aphonia, not quickly relieved by remedies that cure the little patients of all other symptoms. The inactivity and mutism of dementia praecox are conspicuous symptoms of that disease. The extract of rice polishings is "an almost miraculous remedy" (Albert, *Philippine Jour. Sci.*, 1915, XB, p. 81), in infantile beriberi. Vomiting, whining, restlessness, insomnia, dyspepsia, dysphagia, and oliguria disappear as if by magic within a few hours after the extract is given, but the aphonia lasts for six or eight weeks and, rarely, for as

many months. So long as the aphonia lasts, the extract must be continued.

Seeing some resemblance then between dementia praecox and beriberi, and recognizing the great value of extracts containing vitamines in the treatment of this condition, we obtained some rice polishings in August, 1915, and began to prepare the extract and also the vitamins by the methods recommended by Funk and others. The enormous advance in the price of the chemicals required in the production of vitamins compelled us to depend on the extracts alone for therapeutic use in dementia praecox.

The extract was standardized by using as a daily dose the extract derived from a kilo of rice polishings after the method devised by one of us. (R.)

In order to show the value of the vitamins in experimental beriberi, we will show two birds on the screen that had been fed on polished rice and water for twenty days. They were in a spastic condition of the disease and could not live more than three days. They were each given, by means of a catheter and syringe, a single dose of vitamin solution, and three hours later they presented the appearance shown in the two following pictures. Figs. 1 and 2. (From Casimer Funk's *Die Vitamine*, Wiesbaden, 1914, VIII and 193, Figs. 20 and 21.)

The two skiagraphs of the thorax which are next shown represent the condition of a boy's heart before and forty-eight hours after three doses of vitamin-containing extract of rice polishings. (Williams & Saleeby, *Philippine Jour. Sci.*, 1915, x. B., p. 99.)

With these preliminaries, we shall present this young chinaman, Moy Lee, thirty-two years old, residence, 227 W. 22nd street. He gives a history of a healthy youth and young manhood. He has worked hard and long hours. During the past year and a half he has been out of work most of the time. He does not drink, smoke or use opium, and has not had any venereal disease. He began to be sick in July, 1915. He would feel great weakness, and for two or three days at a time he could not raise a foot up a step without using his hands to lift his knee. He walked on the level as if "stuck in the mud." After two or three days of this weakness he would get stronger for a few days, and then, with gradually shortening intervals, the weakness would come on

*Read at the Chicago Medical Society, Jan. 26, 1916.

†From the laboratory of the Psychopathic Hospital, Cook County Hospital, Chicago, under the direction of Dr. Adam Szajkark.

and continue for two or three days again. The extent of the weakness was increased with succeeding attacks, so that when seen first by one of us (H.) on December 1, 1915, he was not able to rise from his chair without using his

clonus. Diminished petellar reflexes. Moderate scrotal and abdominal reflexes. Temperature 98.6, pulse 80, blood pressure 105. Blood taken at this time gave negative Wassermann. Was not fortunate enough to get cerebrospinal fluid,



Fig. 1. A pigeon with artificially produced beriberi. This bird would not live more than three days. Four milligrams of vitamine was passed into the crop. Casimer Funk, Fig. 20.)

Fig. 2. The same bird three hours later. (Casimer Funk, Fig. 21.)

hands, and he could not hold a cup or his chopsticks securely and was always dropping them.

At that time (7 p. m.) he was dressed and sitting in his club or tong. With help he got out of his chair and was able to walk unsteadily into a back room, where he was undressed and ex-

though we made considerable effort. The condition of his skin and hair was good. The teeth were remarkably clean and the gums only slightly retracted. No pyorrhea, and no blue line on the gums. Although he complained of formications, there were no bugs on his body and no

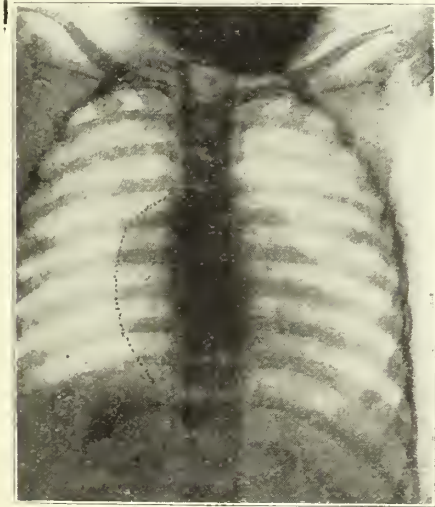


Fig. 3. The heart immediately before the administration of vitamine.

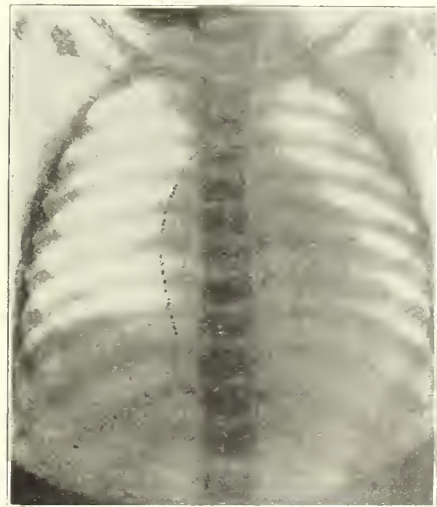


Fig. 4. The heart forty-eight hours after the administration of vitamine.

amined. His pupils were moderately dilated and responded promptly to light and touch. No adrenalin mydriasis. No Rhomberg. Was unable to step up three inches without using his hands to lift his knee. No Babinski. No ankle

eggs on the pubic hairs. His abdomen was not tender. All symptoms were bilateral. He said he was always hungry but not thirsty. He urinated without difficulty. There were no abnormal elements in the scanty, high colored urine.

He was constipated, but "salts" moved his bowels easily. His legs had never swelled he declared, but his ankles were marked by the tops of his shoes. There was obvious edema of the face. This, he said, had been worse at times. The area of cardiac dullness did not seem to Dr. Bayard Holmes, Jr., to be increased; his lungs were free from any evidence of disease.

He had been treated by mercurial pills and by intravenous injections, presumably for syphilis. There were so many symptoms of beriberi in this case that he was given three doses of vitamine-containing extract of rice polishings, recently prepared by us for use on dementia præcox patients, one at night and two the next day, aggregating the extract of six pounds of rice polishings. He felt better after the first dose and when he came to the office four days later, he could step up into a chair without touching anything with his limbs. He has remained well ever since. Strychnin-containing tonics he cannot endure; they make him worse. Since he took the extract he needs no laxative.

His diet now, in addition to his customary rice, consists of two oranges, two apples, or one grape fruit each day, with directions to eat the skins, the seeds and the stems.

If the diagnosis of beriberi in this case is not fully supported by the meager anamnesis and the clinical examination, the marvelous action of the vitamine-containing extract seems to confirm it. We cannot resist the temptation to use this remedy for cases of dementia præcox that exhibit the dilated heart, the formications, or the muscular symptoms of beriberi.

ALCOHOL IN ITS RELATION TO INSANITY IN THE MALE SEX.*

C. C. ELLIS, M. D.

Chicago State Hospital.

CHICAGO, ILL.

Since the opening of the doors of the Chicago State Hospital, the rehabilitated Cook County Hospital for the Insane, there has kept up an incessant stream of admissions constantly taxing its capacity and facilities. Bed after bed has been added until not a niche remains unoccupied and we stand the second largest state hospital in the

west. At the same time there has been a marked increase in population in all the other state hospitals of Illinois. Many of Cook County's insane have been sent to Elgin, Kankakee and Peoria, for lack of accommodation nearer Chicago.

The relative increase in insanity possibly is more apparent than real when we consider the growth of Chicago and suburbs and the ever tightening grip of public opinion and official activities on the problems of segregation of the insane, as well as the feeble-minded, the delinquent and the criminal. But the very evident failure of the state institutions to build fast enough to accommodate the daily increasing army of mentally alienated leads to the question of paramount interest, why are so many becoming insane, and is there no prevention?

In an effort to throw light on the causative factors I have gone into a large number of cases coming under my own observation and whose life histories, genealogy and physical and mental conditions have been analyzed as accurately as possible. The influence of alcohol in producing states of insanity, both directly and indirectly, has appeared so striking to me that I have felt compelled at this time to bring it to your attention and the attention of the public. Especially since the remedy lies in prophylaxis and this is a question now vitally interesting to this community.

I wish to report a series of 460 consecutive male cases of nearly all forms of insanity admitted to one reception ward from the early part of 1913 until December 31, 1914. There was no selection of cases. They were all originally examined by the writer and most of them have received one or more additional examinations by other staff members. The status of all cases still in the hospital is given as of June 1, 1915. The others upon date of parole, discharge, escape or death, as the case may be. In this series there occurred at least 97 cases of alcoholic psychoses—21 per cent. of all admissions—grouped as follows: (Their total number being so near one hundred, gives simultaneously each group its almost precise percentage).

Acute physiological intoxication.....	2
Pathological intoxication	4
Delirium tremens	8
Acute alcoholic hallucinosis.....	26 (27%)
Chronic alcoholic hallucinosis	17

*Read at meeting of Alienists and Neurologists, Chicago, July 12, 1915.

Chronic alcoholic dementia	12
Alcoholic paranoia	23 (24%)
Korssakow psychosis	3
Chronic alcoholism (Inebriates).....	2
—	
Total	97

The chronic alcoholic hallucinatory group is not provided for in the hand book used in the State Hospital service, but experience shows that there is undoubtedly a form of chronic hallucinosis produced by alcoholism, and I have given each case careful consideration in separating it from the acute hallucinatory group. There is also some difficulty in distinguishing the alcoholic paranoiac state as alcoholic hallucinations are essentially of a persecutory nature and may give rise to all the superficial evidences of a paranoia. In fact, a development of one into the other seems to occur quite frequently.

Another debatable point is the development of a dementia praecox attitude in the evolution of an acute hallucinosis into chronic hallucinosis. The condition at a certain level becomes stationary. There is some loss of initiative but complaint at detention, more or less delusional formation of a mildly persecutory sort and sometimes

One hundred three cases of *general paralysis of insane* out of 460 consecutive male cases admitted. Percentage 22.3. Showing relation of alcoholic habits in patients and ancestors:

	Family histories with- out definite statement concerning alcoholism; or unobtainable.	Family histories nega- tive.	One or both parents moderate drinkers (mother in one case only).	One or both parents excessive drinkers.	Total.
Patient's history not defi- nite concerning alco- holism; or unobtain- able	20	1	..	1	22
Patient's history negative	14	7	2	3	26
Moderate drinker	28	4	3	1	36
Heavy drinker	8	1	1	1	11
Drank when younger...	5	..	..	..	5
Drinking increased lately	2	..	..	1	3
—		—		—	
Total	77	13	6	7	103

of an expansive nature. Hallucinosis is more scattered, sometimes pleasant rather than threaten- ing and there is a frequency of somatic sensa- tions of "electricity," "cold breezes" or "warm currents," "x-ray," "mind-reading," and so forth. On casual acquaintance the stream of thought and speech is connected, the attention appears good, but let the stream of mental activity lapse into its accustomed channels and the loosely

formed associations with their mild hallucinatory prompters become apparent. In studying family histories, one discovers that there is frequently a history of alcoholism in the parents of these de- mentia praecox-like alcoholics or the early history of the individuals shows backwardness, if not actual defectiveness. With two cases I have in mind, alcohol seems to incite a maniacal reaction which does not subside for several weeks.

In the alcoholic paranoiac group we have to do with individuals of a more active, suspicious and excitable nature. Having suffered one or more attacks of acute alcoholic mental disturbance, or shown irritability, selfishness or erratic conduct throughout their previous history, one finds them, locked in a state hospital, impatient at their in- carceration, usually entertaining suspicion of their wives' fidelity, the chastity of their daugh- ters or the honesty of their sons. Or, they may feel plotted against by other relatives, lodges, political organizations, or others. There is more or less fixity of delusions with mild systematiza- tion and little tendency toward character change found in the true paranoiac.

Though popularly familiar, the case of de- lirium tremens seems to find shelter and care outside the Chicago State Hospital. They con- stitute but 8 per cent. of alcoholics admitted and 1.7 per cent. of the total in this series. One might venture to say that there are individuals outside who have suffered eight distinct attacks in the time covered by the admissions. As there were, in addition, only two cases of acute physiological intoxication and four of patholog- ical intoxication and two chronic alcoholics or inebriates of the ordinary type, we can readily see that the cases included are an irreducible minimum. As readily seen by the figures pre- sented the acute and chronic hallucinosis and paranoiac types make up the bulk of cases com- ing to a state hospital. There is a sound logic behind this situation. Though the delirium tremens case is furiously active and often self- destroying in his madness, he is usually too con- fused to achieve more than accidental violence to self or others, soon becomes exhausted, and if he survives tends to recover rapidly. The acute hal- lucinosis victim suffers frequently the prolonged onslaught of terrifying and threatening voices and being entirely clear as to orientation can work out a reaction frequently through suicidal or

homicidal attempts. Prolonged observation and hospital care is, therefore, necessary. Likewise the alcoholic paranoiac state, which seems to slumber lightly under all of the acute disturbances occurring in a chronic indulger, may develop into florid form without these acute premonitory attacks and is liable to cause its victim to accomplish wholesale destruction of family and self through his insane jealousy. When one records the history of a typical irritable married alcoholic, it is to marvel at the endurance of wife and children who, besides neglect, insult and injury, have faced death many times when the husband and father in his drunken sprees exhibited the passion and murderous tendencies

attempts while suffering from threatening hallucinations. But in the anamnesis obtained from the wife she distinctly stated he had never offered injury to her; in fact, always protected her, contrary to the statement she had made at time of commitment, we afterward learned, that he had threatened her life with a gun. In an apparently quiescent state and while allowed to work about the hospital and walk out on the grounds by his wife's consent he visited her home and, having imbibed before reaching there, was in an insanely jealous and murderous mood upon his arrival and a tragedy occurred which has produced criticism unjustly stigmatizing the "kindness first" method in the care of the insane

Classification of 97 cases of alcoholism occurring in 460 consecutive male cases admitted. Percentage 21:

	Civil State	Pct.	Alcoholism in parents		Insanity in parents		Alcoholism in brothers and sisters	Insanity in brothers and sisters
			Father	Mother	Fa.	Mo.		
			Mod.	Exc.	Mod.	Exc.		
Acute physiological intoxication.....	S. 2 M. ..	2	{ 1	{ 1 .... ..	.. ..	.. ..	.. ..	.. ..
Pathological intoxication	S. 1 M. 3	4	{ 2	{ .. .. .. ..	.. 1	.. ..	.. ..	.. ..
Delirium tremens	S. 1 M. 7	8	{ 2	{ .. .. .. ..	.. ..	.. ..	1 ..	.. ..
Acute alcoholic hallucinosis.....	S. 15 M. 11	27	{ 1 2 2 2	{ .. .. .. ..	.. ..	.. ..	1 ..	1 ..
Chronic alcoholic hallucinosis.....	S. 6 M. 11	17	{ .. 4 1 ..	{ .. .. .. ..	.. 1	.. ..	3 ..	.. ..
Chronic alcoholic dementia.....	S. 5 M. 7	12	{ 2 .. 1 ..	{ .. .. .. ..	.. ..	.. ..	1 ..	1 ..
Alcoholic paranoic state.....	S. 3 M. 20	24	{ 4	{ 1 ..	1 1	1 ..	3 ..	1 ..
Korrsakow psychosis	S. 2 M. 1	8	{ 1 .. .. ..	{ .. .. .. ..	.. ..	.. ..	.. ..	.. ..
Chronic alcoholism (inebriates).....	S. .. M. 2	2	{ 1 ..	{ .. .. .. ..	.. ..	.. ..	1 ..	.. ..
Total	97		12 14	2 ..	1 3	10 3		

that later were to become fixed modes of reaction and place him beyond the pale of free human associations luckily before his otherwise almost inevitable destiny had been accomplished. How many of these assassinations and subsequent suicides occur yearly it is impossible for me to say. Each occurrence of this kind always stimulates speculation along this line. I believe a large percentage of these cases can justly be added to swell the number of actual or potential alcoholic insanities. Dr. Charles F. Read, in a brilliant essay, presented before this body last year sketches of the histories of two so-called chronic alcoholics who first came into my care and are included in this series. One had been paroled at that time, but subsequently was returned to the hospital. He had made suicidal

as a puerile policy. The prediction was made last year that some day his might become a murderer's hand, but so is this prediction made in practically every case of alcoholic insanity coming into our care and it can be made of any and all cases of chronic indulgence where excesses are liable to occur or a pathological reaction of violence has once been noted. The great problem is how to house and occupy such cases in a hospital for the insane where the average patient is harmless and whose detention is accomplished usually by the most flimsy safeguards. For no criminal ever chafed behind bars as the alcoholic of irritable type chafes within hospital walls and no honor system can be instituted, for with the usual deterioration in their judgment fields comes the inevitable feeling of self-suffi-

ciency and the attitude of being sinned against and of never sinning.

In all the chronic classes of alcoholics we find a few patients where the evidences of arterial and organic breakdown, showing the effects of disturbed body metabolism, indirectly if not directly, due to the alcohol imbibed so freely in past years, frequently bring them into the organic brain disease group, or, the effects on the spinal axis have been such as to produce pictures of combined sclerosis or spastic paraplegia. Three of this series have late epilepsies of apparently clean-cut alcoholic etiology. They all show moderate degrees of dementia.

There are other cases where the prolonged use of alcohol seems to have produced a marked intolerance or susceptibility until the patient has been forced to abstain perhaps after years of

psychoses, involutional melancholia, mixed manic depressive and pre-senile as it is difficult to carry a diagnosis of a combined psychosis through the usual staff meeting in a state hospital without occasioning a definite split in opinion which usually lands the diagnosis on one side or the other or in the "unclassified" group.

Among the males I have found the frank cases of Korsakow syndrome to be very scarce. However, there is a small group of individuals who show the peculiar disorientation and matter-of-fact fabrication tendency without complete loss of deep reflexes and but little tenderness of extremities. The majority of these cases improve considerably or clear up entirely to all practical purposes and resume simple occupations. One case now enjoying recovery had his attack apparently precipitated by drinking a glass of benzene by mistake. An hour or so following this he seemed profoundly narcotized and it was after a delay of several hours he received a stomach washing and stimulation and regained consciousness. He was a constant tippler, though never excessive, and his mental symptoms came to a climax several weeks after the above mentioned occurrence and necessitated hospital care. His recovery was quite gradual. There was never a disturbance of mood or any hallucinations.

The popular belief that head injury causes insanity finds support when we find that many alcoholic cases date their acute onset of mental attacks or intolerance to alcohol after a severe cranial insult or concussion. Cranial traumas are not alone responsible, however. Severe injuries to other parts of the body with consequent shock seem occasionally to set up a similar train of consequences. In the case of the patient, who killed his wife, the original examination showed that all his acute attacks occurred after a severe injury from a fall suffered while carrying on his occupation as a stage carpenter. Insolation seems also to predispose to a small percentage of cases. Twenty per cent of all alcoholics gave such well authenticated histories of injury or other shock. Three-fourths of these were cerebral concussions or skull fractures. When we find delirium tremens following various shocks so easily, is it to be wondered at that the more severe and chronic alcoholic psychoses can thus be ushered in when conditions are ripe?

As to the early mental status of alcoholics,

Status of alcoholics, June 1st, 1915 (admissions ending Dec. 31, 1914:

	Discharged						
	In hospital June 1, 1915	Paroled	Escape.	Recovered.	Improved.	Unimproved.	Dead.
Acute physiological intoxication.	..	..	..	4	..	..	..
Pathological intox. ....	..	..	..	7	1	..	..
Delirium tremens .....	..	..	..	..	..	..	..
Acute alcoholic hall.	2	..	1	18	5	..	..
Chronic alcoholic hall.	11	..	1	..	2	2	1
Chronic alcoholic dementia.	9	..	..	..	2	..	1
Alcoholic paranoiac state.	13	2	1	..	1	6	..
Korsakow psychosis	1	..	1	1	..	..	..
Chronic alcoholism (inebriates) ..	..	..	..	..	2	..	..
Totals	36	2	4	32	13	8	2

indulgence. Following in the wake of this condition, after a few months or years there seems to be a new development or recrudescence of hallucinatory anxiety states accompanied by much agitation and many complaints of somatic change, a self-accusatory trend in the delusional ideas and a feeling of impending doom. Aside from the danger of suicide and intercurrent infections, these cases do not terminate rapidly. They are well oriented to person and place and their hallucinations are of a depressing, threatening nature. One is forced to the conclusion that the involutional changes going on in the organism have lighted up this train of symptoms which are a mixture of the mechanisms of both toxic and involutional psychoses working in conjunction. In the statistics compiled in connection with this paper, these latter cases are grouped under different headings other than alcoholic, such as anxiety

it is difficult to arrive at a precisely correct estimate. From wives who gave histories of men now up in the fifth or sixth decades there are frequent descriptions of irritability, quarrelsomeness, selfishness, jealousy, etc., for years before commitment was necessary, characteristics mostly acquired. In a comparatively small number there was a history of mental defectiveness of one form or another, and these naturally almost entirely among the younger patients. One constitutional inferior, a sexual exhibitionist upon occasion,

port must necessarily be an incomplete one in this respect; for unless the children of these parents were examined, no true estimate of the extent of mental and physical deficiencies could be made. Again it may be years until a potential weakness in the child becomes an actual breakdown as the records in the majority of our insane cases go to show. We have, therefore, to proceed inversely and rely upon the histories of all classes of patients as to habits of their parents and other ancestors to reach any fairly definite knowledge of

Tabulation of all Psychoses other than alcoholic and general paralysis of the insane:

	Total.	Pct. of whole series.	Fam. and per. hist. unobtainable.	Fam. and per. hist. neg.	Fam. hist. indef. or neg. Patients' habits.	Fam. hist. positive. Patients' habits.	Patient's hist. neg. Fam. hist. pos.	Patient's hist. neg. Fam. hist. pos.	Pct. of psychosis group.	Patient's excess. users.	Pct. of psychosis group.	Mod.	Pct.	Exc.	Pct.
Dementia præcox—															
Hebephrenic	80	17	27	24	12	1	5	2	9	17	21	3	3.7	9	11
Katatonic	14	3	8	..	1	..	..	..	4	1	7	..	..	2	14
Paranoid	28	6	8	7	4	1	6	..	2	10	36	1	3.5	4	14
Undifferentiated	2	..	..	..	..	..	..	..	2	..	..	..	..	2	100
Allied states	2	..	1	1	..	..	..	1	1	..	..	..	..	1	50
Total, 132—29 per cent.															
Manic-depressive—															
Mania	17	3.6	5	6	1	1	2	..	28	22	4	3.1	17	13	11
Mixed states	2	..	1	1	..	..	..	..	3	18	1	5.8	4	23	..
Depressed	7	..	2	2	..	2	1	..	1	14	..	..	..	1	14
Allied states	6	..	2	1	2	1	..	..	2	33	1	17	..	..	..
Total, 32—7 per cent.															
Anxiety psychoses	3	..	..	..	..	2	1	..	6	19	2	62	4	12	3.1
Other depressions	2	..	..	..	2	..	..	..	1	33	2	66	1	33	..
Paranoiac states	6	..	3	2	1	..	..	..	2	100	..	..	..	..	..
Epileptic states (Idiopathic)	17	3.6	4	3	3	..	3	1	4	35	1	6	4	23	23
Psychopathic personality	1	..	..	..	..	1	..	..	1	100	..	..	..	1	100
Mental defective—															
Constitutional inferior	4	..	1	1	1	..	..	1	1	25	..	..	1	25	..
Imbecile	8	..	..	3	1	..	1	..	2	37	..	..	1	12	25
Idiot	7	..	2	2	..	..	2	..	1	30	..	..	..	3	43
Infective—exhaustive and allied states	7	..	1	2	1	1	..	1	2	14	2	28	2	28	14
Intoxication psychoses (excluding alcoholic)—Drugs	3	..	2	..	..	1	..	..	..	..	1	33	..	..	..
Psychoses with organic brain disease (excluding general paralysis)—															
Presenile	4	..	1	..	2	..	1	..	3	75	1	17	..	..	25
Senile	6	..	1	4	..	1	..	..	..	33	3	33	2	22	..
Trauma (with acute confusion)	1	..	..	..	1	..	..	..	1	100	..	..	..	..	..
Undifferentiated	9	..	..	6	..	1	..	2	..	..	..	..	..	..	..
Unclassified	24	5	8	7	5	1	1	1	6	25	2	8.3	3	12	..
Total	260	..	77	72	37	13	24	7	31	62	18	..	35	26	..

ascribed all his worst behavior to the influence of liquor. In contradistinction there are many statements that the patient was bright as a young boy and youth, was a good worker, and gradually through environmental influences and the slow action of alcohol itself, lost his grip.

One of the important aspects of the alcoholic problem is the possibility of transmission of degeneracy to offspring. Nearly 65 per cent. of the alcoholic cases were married men, but this re-

the influence of parental alcoholism on offspring. In this series, as there was no selected material, there will be a considerable underestimate of alcoholic conditions among ancestors. No histories whatever could be obtained for some cases and at other times in the hurry of routine history taking many finer points were naturally neglected. Misstatements also undoubtedly occurred when the parents themselves were the informants and were depended upon to answer direct questions con-

cerning themselves or were relied upon, in a measure, to give information spontaneously. As a minimum, therefore, among the alcoholics we have 12 per cent. of whose fathers were moderate users, 14 per cent. with fathers excessive indulgers, and only two cases with mothers drinking and these moderately. There were but one insane father and three insane mothers. Alcoholism occurred in 10 per cent of cases in the patients' brothers and sisters, sometimes almost the whole family being addicted. Only three alcoholic patients had insanity occurring in brothers and sisters.

In regard to association of alcoholism with other psychoses, I found that 22 per cent. of dementia praecox cases had been moderate drinkers and 3.1 per cent. excessive. The manic depressives and allied states showed 19 per cent. moderate and 6.2 per cent. excessive; the epileptics 35 per cent. moderate and 6 per cent. excessive. In two cases of anxiety psychosis each had been excessive or constant indulgers. As to heredity, the dementia praecox group gave 13 and 11 per cent., respectively, of moderate and excessive alcoholic ancestors. Total 24 per cent. alcoholic ancestors. Of the manic depressives 12 per cent. had moderate ancestors and 3.1 per cent. ancestors who indulged excessively. Only one of six paranoiacs had indulged, and moderately, and all their family histories were negative for alcoholism.

There is one curious fact to be noted that not one of the dementia praecox cases with any recorded history of alcoholism in the ancestors was married. There is always a great preponderance of the single among dementia praecox admissions, especially among the males. This one fact points out nature's automatic attempts at stamping out insanity. Though the total dementia praecox patients exceeded the total alcoholic, the percentage of married alcoholics 65 per cent. is vastly greater. Forty-eight victims of alcoholic psychosis had 181 living children, an average of nearly four apiece. What percentage of these are already handicapped? What percentage of dead children would be surviving if they had not been blighted by inherited degeneracy, or environment at birth? The number of dead children in some families runs as high as eight. The number of degenerates, delinquents and feeble-minded among the living are not inconsiderable in my

findings, but as it is possible to obtain more accurate figures from the work of other investigators, no statistics will be given here. Compared to the dementia praecox, the alcoholic is exceedingly prolific and the recruits for the ranks of the insane and the other broken reeds of humanity will come in like proportion from his descendants. Experiments have shown that the sperm cells of various animals have become intoxicated shortly after the ingestion of alcohol and the products of conception under these conditions have been demonstrated to be abnormal. I have taken histories from mothers who have declared that conception under these circumstances caused the frailties and insanities of their children and one cannot doubt it. The influence of alcohol in stimulating sexual appetite is a predisposing factor. When alcohol works in conjunction with already existing mental defect or insanity, the result is most unfortunate for rarely do the offspring escape some form of mental alienation or mental or physical deficiency.

This paper would not be complete without including a report on the other great group of cases which falls to the lot of a metropolitan mental hospital—the "para-syphilitic" disorders. There were 103 cases of general paralysis and other post-luetic diseases. The figures which I have compiled cannot show all the relations that alcohol has to the acquirement and development of these afflictions. Vice and intemperance are closely associated. There were undoubted instances of aggravation of syphilitic and para-syphilitic conditions through alcoholic indulgence. Occasionally the spontaneous testimony we got described constant and perhaps increased drinking in the patient and apparently no other trouble suggested until physical examination and spinal puncture disclosed the underlying condition. But so many striking exceptions occur to these accounts that it is not right to believe there is any necessary exclusive causal connection between alcohol and syphilis in producing general paralysis of the insane. There were 26 (25 per cent.) cases where histories were indefinite—more than likely practically negative. Among the 26 negative patients' histories, there were 7 negative family histories. Fourteen family histories gave no definite statement, but were probably mostly negative. Thirty-six patients were moderate drinkers and 11 heavy drinkers, but

only one of each of these groups had a family history of parents indulging excessively. Thirteen cases had definitely negative family histories. One heavy indulger had a distinct case of alcoholic hallucinosis in addition to paresis and left the hospital much improved as to alcoholic symptoms.

In conclusion I feel that the data I have presented have all been too conservative. The ramifications of alcoholism can only be estimated and moreover are too complex to comprehend through the medium of tabulated statistics. I have refrained from inserting case histories, but the clinical libraries of state hospitals are piling up an enormous weight of evidence against this ancient enemy of men and nations. From the victories achieved by public hygiene over the scourges of smallpox, typhoid fever and tuberculosis, I feel it should be but a few short steps to the efficient control of alcoholism. Some cataclysm equal to the European war may be necessary to loosen the last hold of the commercialized aspect of it. This war has subjected alcoholism to a stupendous test in the strain on national efficiency and it has been found wanting. This only demonstrates again what private corporations discovered several decades ago. If it is personal liberty we cherish, we can forego at least this much of it to set our weaker brother and his children free and lessen our own burdens as his keeper.

BACTERIOLOGY OF THE PRESENT SO-CALLED GRIP EPIDEMIC.*

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In the latter part of December the presence of epidemic conditions became evident. The bacteriologic findings that I have to report are of a general character in so far that I have had no special group of individuals under observation. In a pandemic such as we have now experienced it is usual to see all the pathogenic organisms of the respiratory tract increased in activity and virulence, and if some special group of individuals is examined bacteriologically the pre-

dominating organisms may be quite different from those found in other groups of cases.

A tabulation of examinations made at the Columbus Medical Laboratory during December shows the occurrence of sputum organisms in the following percentages, other than tuberculosis and diphtheria:

Organism	Sputums Per cent	Culture Per cent
Staphylococci	75	80
Streptococci	87	60
Pneumococci	57	25
B. influenzae	29	10
M. catarrhalis	45	20
B. of Friedlander	20	—
Others	12	10

By these percentages I mean to interpret that in all examinations the bacterium indicated was present in sufficient numbers to be noticeable to the percentage given. It is impossible for me to make the tabulation to show the predominating organism, as this was not in most cases the purpose of the examination. Some of those specimens were for vaccines and in these cultural tests were made. My findings would indicate that the present epidemic started as a mixed pus coccus infection, with very soon an increase in pneumococcus and Micrococcus catarrhalis infections. That there has been some increase in influenza cases is shown by finding this bacterium in 29 per cent. of the examinations. In only a few instances have we separated the staphylococcus or streptococcus strains for vaccine purposes, and there are not enough of these to show special prevalence or activity of the various types of these bacteria.

What I have especially noted in examinations during this epidemic is the great frequency of pneumococci covering epithelial cells and associated with clumps of Micrococcus catarrhalis. It is not infrequent to see Bacillus influenzae and Micrococcus catarrhalis in close association in clumps in the sputum at other than epidemic times, but I have noted recently in perfectly fresh sputum this over-growth of pneumococci in association with Micrococcus catarrhalis, the pneumococci covering the epithelial cells and the Micrococcus catarrhalis in long groups in the mucus between the cells.

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I would further like to call attention to the difficulty of making a differentiation of the influenza bacillus in a microscopic examination of the sputum. It is especially desirable to make such examinations on the freshest possible specimens because even a few hours may allow other organisms to overgrow. The association of *Bacillus influenzae* with clumps of *Micrococcus catarrhalis* is also to be remembered and they are, at times, found almost hidden in a group of these larger cells. At times also they are almost entirely within leucocytes and it may not be easy to see them if the leucocytes and pus cells are overstained and apparently full of granules. The usual sputum bacteria, pus cocci, pneumococci, *Micrococcus catarrhalis*, Friedlander's bacillus, are large and so plain that a search over an evenly spread slide will show their presence or the predominance of one or more of the varieties. The influenza bacillus may be also lost in older sputum if there is thick mucus and partially disintegrated cells, thereby clouding the true appearance seen in fresh sputum. The influenza bacillus is very delicate and small and stains so poorly by the methylene blue that it is not as promptly recognized as the other sputum bacterial flora. It is our practice to always stain one slide that has not been treated with nitric acid in the course of ordinary tubercle bacillus examinations so that the other bacteria may be seen as little disturbed as possible. Should there be doubt as to suspicious organisms that might be noticed it is well to stain a slide directly with diluted carbol fuchsin, because with this stain the influenza bacillus can be much more plainly brought to view and differentiated than with the methylene blue stain. The characteristic minute dumb-bell cells stand out clearly when the fuchsin stain is used. If it is at all possible, both direct staining of the sputum and cultures from the sputum should be made, because the more active varieties will be shown in the cultures. When we wish to study the bacteria fully in a specimen we use blood serum, blood agar and agar in such a way as to show colony growth.

For routine diagnosis the direct staining of the sputum in the early stages of the infection should be sufficient to show the presence or absence of the influenza bacillus in practically all suspicious cases.

HYDROTHERAPY IN CARDIO-VASCULAR DISORDERS.*

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When your secretary a few days ago kindly honored me with an invitation to present a paper in your program this evening I chose as my subject the practical application of hydrotherapy in disorders of the heart and blood vessels; first because of the recognized inadequacy of current methods in the treatment of this rapidly increasing class of ailments; and second, because of the very general neglect to make use of the resources of hydrotherapy in dealing with cardiac disorders, notwithstanding the overwhelming mass of laboratory and clinical evidence accumulated in the last quarter of a century establishing beyond room for question the efficiency of appropriate hydropathic procedures in this class of cases. One reason perhaps for the general lack of appreciation of the value of hydropathic methods is unfamiliarity with the technique of more than a few procedures, and frequent disappointment in the results obtained from the use of the Nauheim bath or some other single measure.

In the brief time necessarily allotted me for this paper I shall not attempt to discuss the pathology or pathogeny of the various morbid conditions of the heart and blood vessels, nor of the secondary morbid conditions which develop as the result of cardiovascular disease, but will confine myself to such points as have a direct bearing upon their clinical management.

For success with hydropathic methods so much depends upon precision in technique that it is absolutely necessary to be able to command the services of a nurse well trained in hydropathic methods, and there must be a thorough appreciation on the part of both nurse and physician of the fact that hydropathic applications are two-edged swords. They are indeed formidable weapons, which, if properly directed against diseased conditions, win brilliant victories, but if misdirected may lead to most disastrous and even rapidly fatal results. Lately I received a letter from a physician who was much surprised because a patient suffering from dropsy due to cardiac insufficiency, to whom he had given a vigorous sweating bath, began to suffer greatly

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from dyspnea during the bath and grew rapidly worse and a few hours later died. The patient's life was evidently cut short by the depressing effect upon his heart of the hot bath. Several similar cases which have come to my knowledge indicated the necessity for a clear understanding of the principles which underlie the hydro-therapeutics of cardio-vascular disease. One of the special merits of the hydriatic method is its marvelous versatility and adaptability to the most diversified morbid conditions. As already intimated, it must not be supposed, however, that hydrotherapy is a method which will do no harm if it does no good.

The hydro-therapeutics of cardio-vascular disease rest largely upon the fundamental fact that the heart is a muscle, and as such is influenced by the same agencies which modify functional activities of other muscles. One of the most clearly established principles of hydrotherapy is that by suitable hydriatic applications made to the skin reflexly related muscles may be powerfully influenced. Cold increases to a marked degree tonicity, excitability, contractility, and consequently, efficiency. These facts are clearly evidenced not only by laboratory observations but by common experience. Exposure to cold raises the tonicity of the muscles to such a point that the whole muscular system may be thrown into clonic contractions—the phenomena of shivering. In swimmers, when the temperature of the water happens to be low the excitability and contractility of the muscles may be increased to such a degree as to produce clonic spasm or cramp. Carefully conducted observations made with the sphygmograph, sphygmanometer, electrocardiograph, and the roentgen ray show that the reactions of the heart muscle to cold applications are the same as those of other muscles.

The functions of the heart, as defined by Gaskell and Engellmann are excitability, contractility, tonicity, rhythmicity, and conductivity. It is fair to infer that all of these functions may be augmented by suitable cold applications; on the other hand, it has been clearly established by abundant evidence that prolonged hot applications depress all the functions of the muscular tissue, sufficiently explaining the depressing influence of heat upon the heart.

The chief factors concerned in blood pressure, as observed in health, are:

1. The cardiac energy, by which blood is being continually forced into the arterial reservoir.
2. The vessel tonus, by which the outlets of the vascular reservoirs are controlled.
3. The peripheral heart, that is, the rhythmic activity of the arterioles and capillaries.
4. The blood volume, whereby the ventricles are distended and stimulated to contraction.
5. The elasticity of the arterial walls and of the tissues.
6. The viscosity of the blood.

Hydrotherapy renders substantial benefit in cardio-vascular disease:

1. By increasing cardiac efficiency through augmenting its several functions.
2. By improving the nutrition of the heart, thus increasing its reserve and normal working efficiency.
3. By lessening vascular resistance to dilatation of the vessels, hence lowering abnormal high blood pressure.
4. By restoring the tone of the heart and vessels in cases of hypotension.
5. By aiding in the restoration of lost compensation.
6. By lessening the viscosity of the blood.
7. By increasing or diminishing the volume of the blood.
8. By clearing the blood of toxins.

The heart and vessels must be considered as one organ, the vessels being simply ramifying branches of the heart. The accelerator nerves of the heart and the vaso-constrictors have a common origin in the central nervous system as also do the vagus and the vaso-dilators. It naturally follows that those measures which affect the heart affect the vessels in a similar way.

In the practical management of cardio-vascular disorders it is convenient to group them as Bishop has done into three classes: high pressure, low pressure and secondary low pressure, remembering that there are border liners and intermediate forms of all grades.

In high pressure cases hydrotherapy affords the most convenient and efficient means for lowering pressure by lessening the work of the heart. It is reasonable to suppose that the blood pressure is never higher than it needs to be, that

is, that the rise of pressure is a defensive process and that the only rational methods of dissipating or mitigating this symptom must be those which are addressed to its cause.

Simple cardiac hypertrophy in itself does not increase the pressure in the vessels. In healthy athletes with very large hearts, when at rest, the tension, according to Gibson, is not abnormally high, and may be even found a little below normal.

In arteriosclerosis the narrowing and withering of the arterial twigs as the result of the degenerative process threaten the tissues with starvation. The heart must work with sufficient energy to maintain the pressure at such a point that an adequate supply of blood will be forced through the narrowed blood channels in order to sustain the integrity of the tissues and their functions. The thing to be done then is not to lessen the energy or activity of the heart, but to lessen the resistance against which it works. In other words, the evident indications are: 1. To stop the degenerative process. 2. To dilate the contracted vessels. 3. To lessen the viscosity of the blood.

Since the most common and potent cause of vessel changes is now known to be the circulation of noxious substances in the blood stream, it is evident that improved elimination must be an essential factor in the therapeutic scheme. Copious water drinking is one of the most effective means of accomplishing this. When renal permeability to water is good, two to four quarts of water may be taken daily. The patient should be asked to note and report the amount of water taken and measure the daily output of urine. If the patient is not taking sweating baths or otherwise perspiring freely, the amount of urine should equal the water intake. Food supplies sufficient water to balance the insensible perspiration. On inquiry it will be found that most patients take little water and the scanty, highly concentrated urine is a clear indication of the unclean state of the blood and the tissue fluids. The rinsing out of the tissues accomplished by free and systematic water drinking soon shows beneficial effects in the improvement of the skin color and in the urinary findings.

The best means for relaxing the contracted vessels are the following:

1. Baths of all sorts at a temperature of 92° to 98°, accompanied by rubbing to maintain the

surface circulation. The duration of the bath may be fifteen to forty minutes. The shallow bath and rubbing sitz bath at 78° to 85° are excellent measures. Duration being one to three minutes for the shallow bath, and two to four minutes for the sitz bath. The neutral fan douche (92° to 96°), the neutral spray, rain douche, and the needle bath (88° to 96°), applied for one to three minutes are measures of value dilating the peripheral vessels.

A characteristic of the majority of these cases is the pronounced evidence of degeneration of the skin structures. The skin, as may be easily seen by examining the back of the hands, has lost its normal elasticity, suppleness and freshness of color and is often thin, glossy, and inelastic. When pinched it does not instantly flatten out, but remains ridged for several seconds. In ante-bellum days this test was applied by purchasers of slaves, and when this condition of the skin was found present, the buyer refused to invest, remarking, "too old for any use." Brown spots upon the back of the hands and a varnished or wrinkled appearance are superficial evidence of the degenerative changes which are taking place in the vessels and probably in other internal structures. Such a skin has little vascularity. The result is that the internal vessels are over-filled because this great vascular area which is capable of holding two-thirds of all the blood in the body, is nearly bloodless. The splanchnic vessels in particular are greatly distended and degeneration of these vessels is encouraged. It is evident then, that measures which will improve the circulation of the skin must render valuable service in lessening cardiac work and so postpone the evil day when the heart must fail to do its work because of the exhaustion of its reserve power. The improvement in the skin functions which may be secured by prolonged skin training is very striking. Not infrequently it is at first impossible to induce perspiration in these cases, but after two or three weeks the degenerated sweat glands begin to resume activity and by persevering effort the skin may be in many cases improved to a really wonderful degree. The glossy pallor disappears, together with the pigmentation and the skin acquires to a large degree its normal color and suppleness. Sun baths by "tanning" the skin render service in connection with short cold baths,

producing a superficial hyperemia which lasts for several months. The same effects may be secured by means of the electric light bath, the arc light or the mercury vapor light.

In general, hydrotherapy and the adjuvant measures employed in connection with it proves itself highly efficient, in accomplishing two things in high pressure cases:

1. Lessening the work of the heart, by relaxing the spastic vessels.

2. Improving the quality of the blood through better elimination and oxidation of tissue poisons and other toxic substances.

In pressure cases in which extensive vessel changes have not taken place and which are not seriously complicated by renal disease, the pressure usually falls at a most gratifying rate under the influence of prolonged tepid baths followed by short, cool applications. A fall of twenty millimeters may often be observed as a result of an electric light bath or some other form of sweating bath. In cases of arteriosclerosis of the splanchnic vessels or generalized degeneration of the vessels, the improvement which can be secured by hydriatic methods will not be so marked nor so great, but nevertheless results in the great majority of cases are so good as to afford satisfaction to both patient and physician and render the patient a distinct service, allowing him a few more months or even years of useful and comfortable life.

3. Partial cold rubbings, such as a brief cold towel rub, or a mitten friction with water at 65 to 75 degrees may be utilized to great advantage if care is taken to avoid chilling the patient. It is well to apply a hot bag to the spine or feet during this application, to prevent chilling. All the above hydriatic applications may be repeated two or three times a day with advantage.

4. The wet girdle and heating packs of the legs, worn at night, are measures of value in combating degeneration of the splanchnic vessels. The wet sheet pack, preceded by vigorous friction of the skin, and followed by a cold mitten friction or a salt glow is also a measure of very considerable value.

5. The partial electric light bath applied in succession to various parts of the body, and continued until the skin is thoroughly reddened, is one of the most effective of all means of dilating the surface vessels and clear-

ing the tissues of waste products. The cabinet electric light bath may be employed in cases in which the pressure is not high and the vascular changes are still in an incipient state; the arc light bath may be employed in the same way to excellent advantage. The sun bath, used with caution and repeated daily until the skin is thoroughly tanned, is one of the most effective means of combating degenerative changes in the cutaneous vessels.

6. The sinusoidal electric bath, at a temperature of 94° to 88°, also baths at the same temperature combined with the faradic or galvanic electric currents are very serviceable in this class of cases.

Moderate hydriatic measures of nearly every sort improve metabolism and check the degenerative processes which give rise to high blood pressure.

The most significant triumphs of hydrotherapy are won in the treatment of advanced cases of arteriosclerosis in which the patient, after having passed through a period of very high blood pressure presents himself with a lower and lowering pressure and the characteristic symptoms of failing compensation: dusky skin, enlarged liver, gastric and intestinal disturbances, dyspnea, overexertion, loss of memory, scanty urine and indications of general functional failure. It is, of course, impossible to accomplish as much for these cases as the less advanced, but one may often have the satisfaction of seeing a patient who appears to be at the very door of death brought back to the enjoyment of fair health and given a number of months, perhaps even several years, of comfortable and fairly active life.

The first symptom of improvement in the above mentioned cases is a rise of blood pressure, the patient, usually showing a systolic pressure of 180 to 200, and he is alarmed when he finds his pressure going up to 200 or 225, but his alarm ceases when he discovers that with the rise of pressure, his dyspnea and other discomforts are disappearing; later the pressure falls if he remains under treatment.

The management of cases of this sort requires constant care and close attention to every detail of treatment. To say to such a patient: take Nauheim baths, or take hot baths or cold baths, without most minute directions as to temperature, frequency or duration of the bath is to expose

him to almost certain injury; by cautious management the improvement which may be secured even in unpromising cases is often highly gratifying. Hot baths must be scrupulously avoided. Heat depresses the heart and thus still further decreases its efficiency. By careful cold applications and cautious use of the cooling coil over the heart, employing temperatures of 80° to 70° , the vascularity of the skin may be improved and the tone of the heart and vessels increased. Soon one may have the satisfaction of seeing the swelling disappear from the limbs as well as the dusky hue of the face and the livid appearance of the lips, also dyspnea and other distressing symptoms. Partial sweating baths may be applied in almost every case with benefit, care having been taken to protect the heart by making a simultaneous cold application over the precordial region. By protecting the heart in this way it is possible in many cases to induce general perspiration by applying the electric light to the lower half of the body. After a few weeks the pressure begins a slow but steady decline. The point to which the pressure may be reduced depends, of course, upon the degree of damage which the vessels have sustained. Of special importance in these cases is the change which may be accomplished in the viscosity of the blood. The carefully conducted experiments of Burton-Optiz demonstrated the fact that warm and tepid baths markedly lessen the viscosity of the blood. For example:

A bath at 23° C. (73.4° F.) lowered the viscosity coefficient from K836 to K760 in fifteen minutes; that is, increased the viscosity of the blood 10 per cent. A bath of 42° to 43.5° C. (107.6° to 110.3° F.) raised the coefficient from K1027 to K1126 in fifteen minutes; that is, diminished the viscosity of the blood 10 per cent. in the time named.

It is thus evident that by judicious use of the warm bath the benefit sought through the use of iodide or potash may be secured without imposing upon the already over-worked and damaged kidneys of the patient the additional task of eliminating a drug. It should be remembered also that the bath may be repeated an indefinite number of times without any injurious effect upon the body, whereas the continuous use of iodide or potash sooner or later

results in iodism and various pathological changes more or less grave in character.

The warm bath lowers blood pressure by dilating the surface vessels, inhibiting the vasomotor centers, and lessening the viscosity of the blood and diminishing the effort required to force the blood from the arterial reservoir through the arterioles into the venous system of low pressure reservoirs.

HYDRATIC MEASURES ADAPTED TO CASES OF SECONDARY LOW TENSION.

Every case of high tension due to degenerative changes either in the systemic vessels or in the vessels of the splanchnic area, sooner or later gives place to low pressure, due to exhaustion of cardiac energy. The enormous increase of cardiac work required to maintain the pressure in the arterial reservoir when the outlets are greatly reduced in number and capacity, sooner or later wears out the strongest heart. If the patient does not die of apoplexy or of some intercurrent malady, death will come in time from cardiac or renal failure. The treatment of these is entirely different from that which is appropriate in cases of primary low pressure, for although the pressure falls, the condition of the vessels remains the same. In primary low pressure the fall of pressure is due to dilatation of the arterioles, whereby the outflow from the arterial reservoir is increased; in secondary low pressure, the fault is at the other end of the circulatory system, namely, failure of cardiac energy.

There are two steps necessary in these cases. First, to dilate the superficial vessels; second, to energize the heart. The measures required for the second are the cold precordial compress or icc bag placed over the heart, in the employment of which care should always be taken to precede the application by a measure of some sort whereby the peripheral vessels may be relaxed, and thus the work of the heart diminished.

The best means for relaxing the surface vessels in these cases are short, very hot mitten frictions or hot spongings, short, very hot fomentations to the spine; dry hand rubbing; short cold mitten frictions; hot foot bath accompanied by hot mitten friction or hand rubbings; gentle exercise; resistance movements; light massage; a very short electric light bath at a moderate tem-

perature, one to three minutes, with an ice-bag over the heart after the first half minute.

It is in this particular class of cases that the Nauheim baths are of great service. The temperature of the bath should generally be 88° to 92°. The moderate stimulation of the thermic nerves energizes the heart. The reaction which follows the cold application, especially when the bath is accomplished by rubbing, as it always should be, relaxes the surface vessels, and so lessens the work of the heart. The systematic use of this bath may greatly prolong the life of a person suffering from secondary low pressure.

In personal experience with the baths at Nauheim, the writer observed that patients were not rubbed sufficiently during the bath. Violent rubbing should be avoided, but gentle rubbing should be almost constant during the entire bath, to encourage the cutaneous circulation and thus enable the patient to tolerate a gradually lowered temperature whereby the energizing effect upon the heart and vessels is greatly increased.

By means of an x-ray examination of the chest atheroma of the aorta may be discovered long before degenerative changes can be otherwise discovered.

The greatest care should be used in these cases to avoid general cold baths, general hot baths, and abdominal compression.

The patient's life may be easily snuffed out by an injudicious hydriatic application. A severe general chilling of the surface is about as dangerous in such a case as a bullet through the body.

In cases in which the disorder is due to changes in the vessels of the splanchnic area, either with or without accompanying cardiac or renal disease, measures may be employed which will serve to dilate the portal vessels, lessening the resistance in the vascular system. The measures most useful for this purpose are the following: The protected wet girdle worn at night (care must be taken to wring the towel quite dry, to cover well with mackintosh, and to protect sufficiently to secure quick heating); the neutral sitz bath (92° to 98°, for fifteen to twenty minutes) twice daily; the Scotch douche to the back and abdomen and over the hepatic region. When the abdominal muscles are contracted, the application of the wet girdle may be preceded by a fomentation to the abdominal region for three

to five minutes, and the neutral sitz bath may be preceded by a hot sitz, temperature 102° for one or two minutes. Taking care to keep the colon empty, by employing daily, if necessary, the enema or colocolyster at a temperature of 90 to 100 degrees. The effect of these applications will be to dilate the vessels of the splanchnic area. In extreme cases the legs may be utilized as a means of diverting blood from the general circulation by employing moist packs to the legs at night.

In treating cases of arteriosclerosis, the fact should be borne in mind that the condition of secondary hypotension may have begun, although the blood pressure is still much above normal.

Primary Low Pressure.—In the treatment of primary low pressure cases the problem is much simpler. These patients usually improve with great rapidity under the influence of general cold baths. The heart responds instantly to applications of cold to any part of the body. Cold, of course, does not add to the power of the heart, but it calls into play the *reserve kraft* of the organ, which Lewy has shown to be 13 times that of the usual energy output, that is, a heart which at rest does work equivalent to 72-foot tons in twenty-four hours is capable during violent exercise of doing work at the rate of nearly one thousand-foot tons in twenty-four hours. The low pressure heart has through some cause lost its reserve power.

The value of hydriatic applications in functional cardiac failure is well attested by the common practice of applying cold water to the face and chest in cases of syncope, and the universal resort to cold water internally and externally as a means of refreshment. The common practice of fanning the face to mitigate the depressing effects of heat is an analogous example. Even wild animals employ the cool bath for this purpose. Mr. Seton Thompson tells a charming story of a wild mustang that distanced a relay series of fleet horsemen for several days and nights continuous pursuit and which kept itself in fresh condition by shaping its course in broad circles which brought it at frequent intervals to the banks of a cool stream in the waters of which it bathed for a few moments and then flew on with redoubled speed.

Cold baths give the man with a weak heart the advantage enjoyed by the healthy athlete whose

heart during body rest works at lower pressure than that of the ordinary man because the *reserve kraft* is enormously increased.

In acute cases both the heart and the blood vessels may be involved. That is, the heart may be weak and the vasoconstrictors paralyzed. This condition is found in the majority of acute infectious disorders, and is a result of the toxic influence of bacterial poisons upon the heart and vessels. This is a reason for the great efficiency of the Brand Bath in typhoid and other acute infectious febrile disorders. The value of the Brand Bath is due far less to its direct influence upon temperature than to its beneficial effect upon the heart and vessels through its influence upon the cardiac and vasomotor centers. The strong sensory stimulation produced by the contact of cold water with the skin energizes the heart, stimulates the splanchnic nerves and so contracts the vessels of the splanchnic area, thus supplying an increased amount of blood to the heart, whereby it is able to fill the arterial reservoir, while at the same time raising the tone of the peripheral vessels and increasing the activity of the peripheral heart. The cold bath of Brand, when properly modified and administered is one of the most efficient of all means of aiding the body in its battles against the invading organisms of infectious febrile disease, hence its adaptability to all disorders of this class, which are almost without exception characterized by low-blood pressure.

The wet sheet pack, the cold rubbing sheet, vigorous cold sponging, cold rubbings, and all hydriatic procedures useful as anti-febrile measures, are effective through their favorable influence upon blood pressure.

One point should be borne in mind, especially in the treatment of typhoid fever, namely, in cases of hemorrhage there is likely to be a sudden drop in pressure, although the pressure may already be low. If perforation and infection occur, however, there will be a rise in pressure, hence systematic observance of blood pressure, as well as of temperature, is a matter of great importance in all febrile and surgical cases.

The application of cold over the heart by means of the ice bag, the cooling coil or a cooling compress slows the heart beat and by increasing the rest period of the heart allows time for flushing

the myo-cardium, antagonizing the tendency to myo-cardial degeneration which results from an inadequate supply of blood to the coronary arteries in aortic stenosis and the brown atrophy which usually follows stenosis of the mitral valve. Cold applications to the chest are especially effective in cases of insufficiency of the right ventricle. Such applications are always followed by a deepening of the respiratory movements. A cold precordial compress applied for half an hour three or four times a day is a most appropriate measure, especially in cases of insufficiency of the right ventricle due to chest deformities, asthma, emphysema or goiter. The insufficiency of the left ventricle which results from the lost compensation in high pressure cases due to increasing dilatation, is greatly benefited by rest and prolonged moderately cold applications to the precordium; 80° to 60° may, by increasing heart tone, diminish the dilatation, restore the balance and secure marked temporary improvement by better flushing of the coronary arteries, breaking the vicious circle which increases the heart work while lessening its power through interference with nutrition; the process of fibrosis is temporarily checked, and so long as this arrest can be maintained, the patient may lead a comfortable and useful though restricted life.

Cold increases the tone of the heart and thus diminishes dilatation. By this means the work of the heart is lessened to a marked degree by decreased hydrostatic resistance, while at the same time the excitability of the heart is increased and thus also its working efficiency and reserve power. Although I have habitually made use of hydriatic methods in dealing with chronic disease during more than 40 years, it is only since the perfection of instruments of precision for the observation of blood pressure that it has been possible to make an exact study of the effects of the special procedures of hydrotherapy in this class of disorders. Since 1898 I and my colleagues of the Battle Creek sanitarium have observed cases in which blood pressure was 140 millimeters or above in nearly 6,200 cases. The general effects of the systematic application of the methods above outlined may be judged from the accompanying table which shows the average reduction of pressure as indicated by the difference between the systolic pressure observed when the

patient was received and when he was dismissed. In the table the cases are presented in seven groups according to the degree of high pressure.

Systolic Pressure.	No. of Cases.	Average Systolic Pressure—		
		On Admission.	Points Lowered.	On Dismissal.
140-160	3,838	143.00	13	130.06
161-180	1,195	170.03	30	139.54
181-200	597	191.49	16	174.82
201-220	250	202.64	12	190.82
221-240	146	222.00	21	201.00
241-260	60	248.80	31	218.00
261-300	19	273.63	41	233.25

In conclusion I desire to say that I have made no attempt in this paper to present a complete therapeutic scheme for the management of cardiovascular cases, but rather to call attention to the important part that hydropathic applications may be made to play. The regulation of the dietary, exercise, and personal habits of the patient are of utmost importance in combating the degenerative processes which induce arterial changes; diathermy, mechanotherapy, automatic exercise, and various other physiologic measures may be made to render valuable service. To attain a maximum degree of success, the patient's whole life must be controlled. He must be trained to live biologically and every rational and appropriate remedial measure must be utilized. Even then our best efforts will generally fail of accomplishing more than temporary amelioration in advanced cases, nevertheless, the results attainable even in cases apparently hopeless are sometimes so surprisingly good that it is very rare indeed, that a serious effort is not well worth while.

HOW MUCH BETTER CAN WE TREAT VENEREAL DISEASES THAN WE DID TWENTY YEARS AGO.*

ALBERT E. MOWRY, M. D.

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CHICAGO.

Progress in curing disease has been good but slow. Enthusiastic investigators have exploited thousands of cures and specifics, most of which have eventually fallen by the wayside after a greater or less period of expectancy, trial and popularity, followed by disappointment, failure and possibly damage.

Genito-urinary and venereal diseases have had their quota of specifics and life savers. They have also had their percentages of downfalls and undoings.

*Read at meeting of Stock Yards Branch, Chicago Medical Society, Dec. 9, 1915.

Do we, on the whole, secure better results in our treatment of venereal diseases than we did twenty years ago? I say absolutely, YES. And many of our results for the better have been secured by getting some good points on some of the discarded methods. So the investigations have in the long run evoked thought and better results.

I will attempt to compare present therapy with that of a few years ago.

CHANCROIDS

Formerly caustics and dusting powders of many names. Caustics oftentimes increased destruction of tissue, making bad matters worse; dusting powders created a hard shell over the site of lesion, causing retained secretions and increased destruction. A specific vaccine therapy was suggested, brought forth, given a trial on some new and old persistent cases, and much lauded as a partial specific. My experience with this therapy, while limited, has been disappointing, and I do not see this treatment used nearly as frequently as it was two or three years ago, which rather indicates its probable failure as a real specific.

TREATMENT TO-DAY

Plentiful use of soap suds two or three times daily, carefully rinsing off followed by local application of ether or alcohol. Put on bike jock strap and have patient change gauze at each act of urination. Dorsal slit if foreskin does not retract easily. Do not try complete circumcision as there will be a great ulceration and possibly destruction at sight of the sutures.

GONORRHEA

A few years ago many specifics both locally and internally.

To-day, fewer specifics both ways and still a list almost as long as the present election ballots.

ABORTIVE TREATMENT

A few drops of 2 per cent. AgNo 3 solution dropped in meatus and fossa navicularis using ordinary eyedropper will abort a small percentage of cases, but use of stronger solutions not advisable for many reasons.

The abortive treatment must be employed at

every first intimation of the infection to be of any service.

The treatment of acute gonorrheal urethritis twenty years ago was diversified but about as follows;—injections, antiseptic, astringent, and anesthetic. The syringe suggested about one-half ounces. The size of syringe has been reduced to usually one drachm or large penis two drachms because the large syringe overdistended the anterior urethra, causing irritation, tenesmus or traumatism to cut off muscle with resulting spread of infection to deep urethra, seminal vesicles or vas. This observation has been of great benefit in preventing complications.

At present a mild antiseptic and anesthetic injection is used carefully each time after urinating, always removing syringe just after injection and holding meatus with fingers gently so as to retain the solution for a couple of minutes. One drachm quinine bisulphate to six ounces distilled water is undoubtedly the best medication. Use a good grade of bisulphate of quinine, as a poor quality will precipitate, causing irritation.

Argyrol and its substitutes deserve mention.

In later stages our old AgNo 3 solution in one grain to the ounce deserves use.

Irrigations formerly much used are very much less used by men who are fairly close observers. An irrigation any way we may use it or any medication we may add has its disadvantages. It shows a rather forcible stream along the delicate mucous membranes causing more or less damage. You can turn your irrigator on the skin of your forearm and let it throw the stream on a limited field and when the operation is ended there will be smarting and possibly a reddened condition present. The skin on the forearm is much more resistant than is the urethral mucosa.

I have noted a rather severe hemorrhage following permanganate irrigations on several occasions.

Another point, irrigations overdistending anterior urethra slightly traumatises cut off muscle, but that small amount of traumatism will often account for acute epididymitis or posterior urethritis with all its bad features.

Internal medication for acute gonorrhea has practically dwindled to one drug, sandalwood in ten drop capsules after eating and I have found that sandalwood is tolerated much better if we

give two drachms of the old mixture rhubarb and soda, about two hours after meals or a tablet of rhubarb and soda containing five grains of each will do instead. Hexamethyl enamine is not only of no help but it increases irritation.

The serum and vaccine treatment for gonorrhea and its complications are disappointing. As they stand to-day we must still try our old methods.

Carl Worden has fully demonstrated the fallacy of present vaccine therapy for gonorrhea.

Another important factor is how to keep pus from getting on underwear. Formerly a pledget of cotton was placed at meatus and foreskin pulled over it. This pledget of cotton would become saturated and act as a retaining plug, very much irritating the meatus and fossa navicularis. Next came the gonorrheal bag. The penis hanging in this unsanitary pouch with the cold pus and secretions giving a clammy feeling did not make the patient feel overly comfortable.

At present we must use a jock strap or athletic supporter which comes in three sizes, a piece of clean gauze surrounds penis and at each act of urination the penis is simply pulled out of one side of the strap and a clean piece of gauze substituted for the soiled portion. This scheme works splendidly.

REGARDING CHRONIC GONORRHEA.

The improved deep urethrescopes have greatly added to our knowledge and ability to treat pathological conditions present.

The Swinbourne deep urethroscope is simple, easy to manipulate and inexpensive.

The Brown-Buerger and others have advantages but are more complicated.

Strictures are not cut so much as formerly and the hard sclerotic stricture, while it still becomes necessary to cut at times, is not cut as deeply as used to be the case. Some of the terrific deep cuts formerly made caused much hemorrhage and possibly later permanent scar formation that might cause more or less permanent deformity to penis itself. Meatotomy should not be done as a routine treatment, as it many times causes a dribbling of urine.

The usual sound treatment followed the urethrotomy in a day or two. Now we wait a week after cutting before we begin to keep open with sound treatment. Much better results in

external urethrotomy are due to a better knowledge and technique.

Another advance in treatment of chronic urethritis is the ordinary Benique sound, with the usual calibre at the curve but a tapering smaller shaft towards the handle. The pain incurred on passage of these sounds is much less and they are even more efficacious than the old type because they squeeze out old urethral follicles both at ymitis and seminal vesiculitis; with many suggest to get an odd sound of this type and its good points caused me to order a complete set, which I use almost exclusively.

At the present time many surgeons are making the statement that so many cases of chronic gonorrhea remain uncured because the disease is in the genital tract rather than the urinary.

At the recent meeting of Genito-Urinary Surgeons, held in Chicago, almost the entire program consisted of papers on acute and chronic epididymitis and seminal vesiculitis; with many suggested operations for the cure of the same. No one method of treatment was accepted or generally endorsed.

In my opinion the old measures of treatment for acute epididymitis, namely, immobilization and hot fomentations, should be used until there is a more perfect understanding of the results and possibilities of operative procedures in these cases. In any event, my belief is that nine tenths of chronic gonorrhea is due to lesions of urethra rather than purely genital tract. One reason for this is that the irritating substances in the urine have a tendency to prolong pathological lesions in the urethra proper.

SYPHILIS.

Whatever may be said regarding the possible slowness in our being able to more promptly cure gonorrhea and chancroids cannot be said of advance in curing syphilis.

Twenty years ago practically no cases of syphilis were cured as we see conditions to-day.

Today, ten weeks after a chancre gives up a few spirochetes for our certain diagnosis, we can almost assure the patient he will never have a positive Wassermann again.

Physicians these days who wait for the secondaries to appear before beginning active anti-syphilitic treatment are guilty of gross carelessness and almost criminal negligence; because

when the secondaries appear it means that syphilis has been generalized and the spirochetes are becoming encapsulated, which makes it a hard proposition to secure a complete cure.

The suspected initial lesion should be almost daily investigated in an attempt to find a spirochete and blood tests should be insisted on every few days to allow the earliest possible diagnosis.

How can we permanently cure early syphilis? If you have a smoldering fire in a slack dump connected with a coal mine and this slack is slowly burning, you can throw on a few streams of water and the fire to all outward appearances will be extinguished, but sooner or later you can expect to see more smoke arising, showing a latent fire. But if you cause a deluge to come in contact with the slowly burning slack you can entirely extinguish the fire. You might keep a light hose working on the fire for years and still not do the work. So it is with syphilis. Put a deluge of soluble mercury, so to speak, in the blood for ten weeks and you can almost bank on permanent results.

If we use mild measures the spirochetes will not diminish much in numbers. If we use heroic doses of mercury the immediate result will be the destruction of many spirochetes, but if the next dose is delayed in the meantime the spirochetes not killed will reproduce and there will be almost as many as when previous dose was given. Go to the spirochetes ferociously.

If we treat pediculi pubis we must get every one as well as the larvæ, for if we leave one and discontinue treatment, in 2 or 3 weeks there will be another healthy colony.

To give mercury in heroic doses often repeated means soluble mercury in order to insure safety and avoid complications. As between soluble and insoluble mercurials for injection purposes, why do I give soluble? First, it is safe. If we do happen to get into the vein we simply have an intravenous injection of a soluble mercury. That does little or no harm, but with all our careful technique and care we sometimes get into the veins with our injections.

If an insoluble salt is injected into a vein the results are possibly a coroner's inquest or a pulmonary or cerebral embolism, with all their uncertain and distressing symptoms. These things do not happen every day. No, but they do happen, and along with it goes sometimes the repu-

tation of a competent man, as viewed by the laity.

Another factor, and very important one, is that in using insoluble injections we can only give an injection at rather long intervals because of possible accumulation, while in soluble injections we can give large doses every second day and secure the intense mercurial action we desire.

Another factor that I do not believe has been fully enough dilated upon is that slow absorption of mercury, such as we get from insoluble injections or mercury given per mouth, has a marked tendency to cause ptyalism with all its bad symptoms, while soluble injections of mercury seldom causes salivation, in fact, I have noticed a peculiar tonic effect in many cases.

It is claimed that insoluble mercury does not cause as much local pain and that is given as one reason for its use. All that I can say is all and any kind of injection into the gluteal muscles causes pain and it is six of one and half a dozen of the other.

The one essential feature to be considered between soluble and insoluble mercury injections is that soluble injections in large doses will almost invariably cure syphilis in its early stages; while insoluble injections do not as a rule cure.

The recent report of the surgeons at Ft. Leavenworth penitentiary on the use of salicylate of mercury over long periods of time with only one cure in forty or fifty cases should cause advocates of insoluble mercury to pause and think.

I use but little iodides in my treatment. I find that tincture of iodine, three to eight drops in water after meals, is better tolerated and mouth as indicated in our present knowledge in

I do not consider administering mercury per mouth as indicated in our present knowledge in the treatment and cure of syphilis.

Mercurial inunctions, while possessing some virtue, I do not consider nearly as efficacious as injections of large doses of benzoate of mercury.

I formerly used the bichloride in its famous 8 gr. bichloride, 8 gr. carbolic acid, 16 gr. sodium chloride and 1 oz. distilled water, but today I use one per cent benzoate of mercury in normal salt solution with a slight excess of the salt; this makes a perfectly clear solution. I give an average sized adult as a beginning dose about forty

drops in the deep gluteal muscles. I use a dental sub. safety syringe and use needle one and one-half inches long, twenty-two gauge. I use a new needle practically each time, as a dull needle causes much more pain and may stop at some sheath in the muscle and unloading the contents at this point is more painful than if contents are emptied in soft muscular area, which will usually be the case if sharp needle is used.

I increase the doses up to 90 drops and give every second day. This is big dosage. Yes, but I have given thousands with no untoward results, not even kidney irritation and with but a very few cases of ptyalism, which cannot be said of insoluble injections. I give about thirty injections as a rule.

Most surgeons advise injections in upper and outer quadrant of gluteal muscles. My experience has caused me to usually inject low down in gluteal muscles not far from the fold. The pain and discomfort are less when injections are made here.

I find in hereditary syphilis my results are not satisfactory with this treatment and also in very old cases, but in early syphilis I absolutely expect a quick and permanent cure. A number of cases that I treated five years ago when the Wassermann test was first practical still show a negative test and good health.

I do not claim any originality in this treatment, but I have carried it on diligently in private practice and clinics and feel certain of results.

Since salvarsan and neo-salvarsan have been on the therapeutic bill I have given patients the benefit of possible aid by these agents and have concluded about as follows:

Salvarsan is much superior to neo-salvarsan. Salvarsan should be used by men who have made a thorough preliminary preparation by doing plenty of blood vessel work and know the many little points.

I have seen a tube of salvarsan discarded because of a little faulty color which meant a chemical change that might kill the patient.

I give these facts because I believe the giving of salvarsan in competent hands as an aid to the mercury is advisable. I give mercury for ten days, an injection every second day, then wait two or three days and give salvarsan, then two days later start in on mercury ten days more,

with five injections of mercury, then salvarsan again in two or three days, then two days later start on mercury etc., in all about five injections of salvarsan and twenty-five or thirty of mercury. Do not give mercury and salvarsan within thirty-six hours of each other.

Salvarsan by itself, I do not believe will cure syphilis. I have noted too many recurrences even after five or six doses, but with the mercury it undoubtedly hastens permanent cure.

Removal of chancre by excision as soon as we know spirochetes to exist, thus cutting off a large local foci, is possibly advisable at times.

PREVENTING VENEREAL DISEASES.

As we see the thousands of new cases of venereal diseases appearing each year and look back twenty years, we rather wonder whether we are doing our best to stamp out these terrible evils. There does not seem to be much of a letup in new cases; in fact, the percentage may show an increase. We must impress in a way not to be mistaken the dangers of venereal diseases on young boys 14 years old. Tell them death and much suffering are often caused by "clap." Tell them if they do decide to take chances to be sure and make plentiful and copious use of soap suds followed by an immersion of penis in a one to five diluted alcohol (20 percent) for a few minutes immediately after coitus.

At 14 a boy's sexual status is not determined. We must act at that time to get results.

I have designed a brief (for brevity counts when we want to tell boys) card with a suitably inscribed sealed envelope to enclose it, which will at least let boys 14 years old know "clap is no joke."

SURGERY AND SYPHILIS.*

J. H. CARSTENS, M. D., F. A. C. S.
DETROIT.

Years ago, I had charge of a dispensary for ten years. Here, as in all dispensaries, there gradually drift all the cases that have made the rounds and have been subjected to all kinds of treatment for years without benefit, and finally they end there. They are mostly patients that are supposed to be incurable, such as chronic joint troubles,

bles, the so-called rheumatism, heart diseases, dropsy, enlargement of the liver, stomach troubles, kidney diseases, inveterate skin troubles, and the long string of nervous symptoms where we will find no particular classic symptoms, but find the patient is miserable and sick.

This was right after the Franco-Prussian war, and some of these patients had come over from France, but a good many from Germany. Naturally, I treated these patients on general principles, alteratives, iodides, and mercurials predominating. It was astonishing how some of these chronic cases would rapidly improve under such a line of treatment. I soon learned that many were obscure cases of chronic syphilis, and on more thorough investigation, I found that some of these patients while in the army had a primary lesion, and were subjected to a most thorough systematic course of treatment by inunction, and that for twenty or thirty years they had been perfectly well, and married, raised a family of healthy children, and now in their old age developed these various, often obscure, diseases and symptoms. After this had been thoroughly impressed upon my mind, I began systematically to look for the trouble, and readily made the diagnosis. For instance, people with some obscure heart trouble, with dropsy or edema, would improve and remain well for a long time; others with chronic joint troubles would rapidly clear up with constitutional treatment, there being simply gumma deposits near the joints. Cases of diabetes where the symptoms would often clear up. When it came to the chronic skin troubles that was easy. Then we had the long array of liver enlargements, with more or less jaundice, that were gradually relieved by iodides, also some cases of diabetes, and finally we relieved those most obscure nervous troubles of all kinds, restlessness, sleeplessness, sometimes delusions. Many of these we could relieve with the anti-specific treatment.

There was another thing I learned at that time, and that was that the American profession, as a rule, had never properly learned how to treat syphilis with the systematic method by inunction continued for several years. I should rather say, some American physicians had not learned it, for even though some had a clear conception of it, they could not carry it out as they did in the German army. The patients would perhaps carry

*Read before Chicago Medical Society, Feb. 9, 1916.

on the treatment for a few months; when all the symptoms disappeared they would not return. I know they treated me that way, and so I did not blame my colleagues for not carrying out the treatment for a long time, as the patients would not submit.

About this time I became professor of therapeutics, and with this experience it is natural that I emphasized to the students the great value of mercurials, and especially iodides in all chronic and obscure cases, and I most emphatically impressed upon their minds that they should never let an obscure or an apparently incurable case go without subjecting it to a thorough course of treatment by iodides. I was so positive on this point that a student with a poetic turn of mind one day wrote on the blackboard just before I entered the lecture room,

"If on the diagnosis you cannot decide,
Just try a little potassium iodide."

Well, that was a good, catchy phrase, and I used it in my lectures thereafter.

In the course of time, when papers were read before our medical societies, and I got up to discuss them, and said that I had cured so-called chronic hepatitis with iodide of potassium, and on other occasions said I had cured such nervous conditions and sleeplessness with the same remedy, or if I said I had apparently cured some heart troubles, or dropsy, with iodide, and that those chronic joint troubles could often be relieved by the same remedy, I could see a smile pass over my colleagues' faces. I knew they thought in the slang expression of the day, "Nutty on the subject"; but I was not. I had had the experience, and, as the banker says, the collaterals to prove it.

In the course of time it was a gratification to me to read in the medical journals the reports of investigators showing that aneurism of the aorta was often caused by syphilis, and when the spirochete pallida was discovered, and investigators proved that it was found in the liver, nervous system, and joints, and so on, I was pleased to have my views verified by actual demonstration. Within a few years Professor Warthin of Ann Arbor has shown that in apparently *cured cases of syphilis* he has been able to demonstrate the spirochete in the heart muscles on postmortem examination, and showed them with the lantern slides. He has also lately shown on postmortem

examination in cases of diabetes that the pancreas was filled with the spirochete, which goes to show that anti-syphilitic treatment in such cases might often relieve the patient. This long prelude you may think has nothing to do with the title of the paper, but I bring that out simply to show you how I have been evolved into this view by my past experience.

You can readily see that when in the course of time I was gradually developed into an obstetrician, and from that into a gynecologist, and from gynecology into an abdominal and pelvic surgeon, that I carried this experience and these views into my new field of action. I soon found that patients with different kinds of pathological conditions that required operative interference were often suffering from syphilis, and that the latter really produced the symptoms. That they needed an operation to cure a badly lacerated cervix or perineum, to relieve a displaced uterus, or to remove tumors of various kinds. To help their stomach troubles it was necessary to remove gall-stones, or a chronic or diseased appendix, or relieve adhesions. But back of all these there were little obscure symptoms due to a syphilitic condition, that could only be helped by constitutional treatment, and I soon had cases returned to me, patients whom I had operated on and where I had been careless, and not made the diagnosis of syphilis. When I had patients come to me who had been subjected to an operation, some to several, without any benefit, and on thorough investigation I found that some of them were obscure cases of syphilis that required besides operation, which may have been very proper and well done, constitutional treatment. I became more careful. Hence, now in all cases that I investigate I am always on the lookout for syphilis.

Years ago I had a patient (whose son had been a student of mine, and was practicing in the country) come to me for some simple endometritis, made local applications for a few weeks, and then I did not see her for a couple of months. Then I was called to her house in haste, found her suffering from hallucinations of a funny kind. She had not slept for nights, she said, and could hardly be controlled. I soon recognized the trouble and promptly put her on hypodermic injections of bichloride of mercury, a quarter grain once a day, well massaged, and twenty

grains of potassium iodide three times a day. She was soon relieved of her nervous symptoms and perfectly well thereafter, dying some years later of pneumonia.

Some fifteen years ago a patient with a fibroid tumor came from Colorado to Detroit to some relatives for the purpose of having an operation. I was called to see her, and she was very weak and run down; she had not had any nourishment for three weeks, they claimed. Constant vomiting, but they thought the tumor caused the vomiting, and that she would not be cured until the tumor was removed. The tumor was quite large, but I knew better. On investigating the case, I found that some six weeks previously she had had a kind of dizzy and fainting spell, but soon recovered, and I found well marked evidence of syphilis. I also put her on a quarter grain of bichloride of mercury hypodermically, and twenty grains of iodide of potassium three times daily, giving the latter by rectum until her stomach was settled and she could take it by mouth. Inside of a week she could eat anything and developed a voracious appetite, and had gained rapidly. I was about on the point of setting a day for the operation, when one morning as the nurse was combing her hair she gave a gasp, fell over in the bed; before I got to the hospital she was dead. Fortunately, we could make a postmortem examination, and found that she had an effusion of blood at the base of the brain, and also had an old blood clot, which probably had caused vomiting. These cases were before the spirocheta and Wassermann test.

When your secretary kindly invited me to read a paper, I was delighted to come, but really did not know what to write about, as everything has been covered so frequently and thoroughly. But during the next week I had four different cases, and it suddenly occurred to me that the above title would be a good subject, as not much has been written on it so far as I know, and at the same time it would be of practical use to the general practitioner, as well as the surgeon. You all know about it as well as I do, but the symptoms are so mild and obscure in many cases that we often do not think of it. I know it has often happened to me in spite of being especially alert on the subject, and I often overlook it on the first examination, and only after treating the patient for a while it suddenly dawns on me that

I neglected to investigate that side of the case, as the other symptoms predominated so powerfully.

Case 1. Mr. M—— came to me and complained of backache and trouble in passing water and feces, had been treated by a number of physicians, and was told that he had a large prostate and needed an operation. He was forty-six years old, and brought his son along, a young man of eighteen who seemed to be perfectly well. He was nervous, suffering from sleeplessness, and had lost about twenty-five pounds during the last three months. On investigation, I found evidence of syphilis. Rectal examination showed an enlargement between the bladder and rectum; there was no stricture. I sent him to Harper Hospital for a thorough examination, found the bladder normal, as well as the kidneys, but the Wassermann examination showed XX plus. I immediately put him on mercurial inunctions, one dram a day on the back when the pain was severe. Of course, it makes no difference where you put it, but it has a moral effect on the patient. In a few days the backache ceased, he could sleep well, the swelling gradually diminished, and the urine and bowels moved freely. He has gone to work, but is still under treatment.

Case 2. Mrs. B——, aged forty years. This patient came to me nine years ago, her menstruation had gradually become less and far between, and for the last two years had not appeared. I dilated the uterus and inserted a stem pessary, and in a few months it became normal. After one year I removed the pessary, and it has been perfectly normal for eight years, but during the last year it has gradually become less and painful, and at long intervals. She has become nervous, sleepless, and at first seemed perfectly straight mentally, but after a little while she told me the most marvelous stories, and I saw that she was suffering from delusions. I sent her to Harper Hospital, had a careful examination made of the urine, which was normal, and the Wassermann report was negative. It made no difference to me; I recognized the syphilitic trouble, ordered a dose of salvarsan intravenously, and promptly put her on inunctions of mercury, one dram a day applied to the back. The fifth night she slept through without a single disturbance, and was clamoring to go home. I told her she had to continue the treatment, but as she had a practical nurse at home, I allowed her to go. The treatment was not continued, and in two weeks she was nearly as bad as when she started. I sent her to a sanitarium, and turned her over to Dr. David R. Clark, who is treating her vigorously, and tells me she is much improved.

Case 3. A lady from Canada, on whom I had operated years ago, brought her sister to me for my opinion. This young woman, twenty-seven years old, had her first baby two and one-half years before, and since then had been ailing. She was supposed to have some womb trouble, as she had backache. She claims that she had not slept for three weeks; she was very nervous, anemic, and run down. Menstruation was

normal, rather scant; she was very constipated, and took castor oil every day. On examination I could not find any pelvic trouble. The slightest little laceration of the cervix had healed, a slight tear of the perineum was of no importance, all the organs were in proper position, and I could not find any evidences in the pelvic, or any abdominal trouble. I immediately put her on anti-specific treatment, and she is already much improved.

GENERAL CONSIDERATIONS.

But what is the use of relating more cases? I just mention a few different types of symptoms. The great point is to recognize the trouble. First of all, let me say about the Wassermann reaction. I always make use of it, and if it is positive I can, of course, state beyond any question what the trouble is. But if it is negative, I for one, pay no attention to it. I make the diagnosis just the same as I did before such a thing was heard of. It has been shown that alcohol would produce a negative result, and many people take it in some form or another, even unconsciously. Anesthetics have the same effect, and a good many other things that we know not of at the present time. So that in my opinion, the Wassermann is a valuable thing when it is positive; the negative is of doubtful value, and I must often smile when I hear about patients being cured of syphilis because the Wassermann is negative. In my opinion it is no proof whatever, and I think but very few are positively cured. Some nidus of spirocheta remain somewhere in a joint, in the heart muscles, or in the nerves, or the spinal fluid, and in the course of time will again manifest themselves. The diagnosis is ordinarily easy, although in some cases you have absolutely no history, but on repeated interrogation you will often find that the patients will suddenly remember that they had had persistent throat trouble, skin lesions, falling out of the hair and so on, and frequently you will find nodes on the tibia and the clavicle, and enlargements of the post-cervical glands. But if all these should fail before beginning treatment, it is marvelous how the energetic treatment by mercurials and iodides will clear up the symptoms, and I know of no other conditions or disease where such remedies will have any such effect. As a rule, I start them with protoiodide of mercury, a quarter grain, quinine two grains, three times a day for about ten days.

If they have had, however, treatment before, I

start them with iodide of potassium very small doses, five grains, three times a day in water, to gradually eliminate the mercury. If you give too big doses at once you may get all the symptoms of mercurial poisoning. In four or five days I double the dose, and in another few days perhaps double it again, giving sixty grains during the day. The mercury is all washed out of the system before that, and now you get the effect of the iodide. You must bear one thing in mind, however, that the kidneys do not eliminate more than twenty-five or thirty grains a day, and by giving large quantities of water, which you always must, you may increase this some, but we reach a limit and the iodine will accumulate in the system and will thereafter be eliminated when we cease giving it for several weeks. After the iodine is pretty well eliminated and the symptoms have disappeared, I start them with inunction of mercury, saturate the system by using one-half to one dram just to the edge of tolerance. I then reduce it to ten grains or twenty grains, and make the patient keep that up for a year or two, and report occasionally.

This mercurial inunction, however, is a disagreeable thing to many patients, and sometimes I do not want patients to know what they are getting, especially if they are women, when we do not tell them what the trouble is, as is often desirable. I have been trying and experimenting all kinds of ways how to cover the color of mercurial ointments. I have not succeeded very well. The best I found is belladonna ointment half and half, sometimes two-thirds belladonna. This gives the ointment a green color and peculiar odor, and colors the mercury. You will ask about salvarsan; it certainly is a valuable remedy in certain cases, but its use is limited, as I can learn from others, and from my own experience. I give a few doses, a week or ten days apart, not more than three or four, and follow it up with the inunction. I have seen large quantities given and repeatedly without any benefit whatever, and I have seen quite a few who undoubtedly died of arsenical poison. Too much salvarsan is given—a regular craze it seems to me.

The value of arsenic has well been recognized in this disease, and more than forty years ago Donovan devised a solution of arsenic, mercury, and iodine, given just like Fowler's solutions, and I have found this a most valuable remedy on

many occasions. When other remedies failed to do any good, or they had been tried by their physicians, and especially in those cases that could not tolerate iodine or potassium, I got prompt and good action from Donovan's solution, starting with five drops three times a day, and gradually increasing it to ten.

Most of my patients being women, it is peculiar how the laity and also some doctors attribute every trouble that a woman may have to her pelvic organs. If there is the simplest trouble, a slight laceration, displacement or benign tumor, all of her symptoms are believed to be caused by this simple or mild pelvic condition. I have always warned the family physician and the patient, that all the symptoms will not disappear after operation, that they often need long continued after treatment by their family doctor, and there is no use to operate on them unless they agree to this; whether it is syphilis, chronic constipation, dyspepsia, or any other trouble, the operation does not relieve all the symptoms.

I simply call your attention to one condition often complicating surgical cases, and that is syphilis. The symptoms are so peculiar, changeable, coming and going, that they are often overlooked. All I plead for is, do not promise patients too much, as the result of the surgical operation. But if you can see back of all that, the syphilitic condition, you can as a rule, give them wonderful relief with or without an operation.

In conclusion, I would simply say:

First. Many symptoms in surgical cases are not caused by that condition.

Second. Surgical symptoms are masked or even intensified by syphilis.

Third. By constantly looking for syphilis, we will seldom overlook it, and be able to relieve many symptoms in our surgical patients.

Fourth. If recognized, long continued systematic treatment is necessary.

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MICRO-ORGANIC WEIGHT.*

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As much attention as the question of bacteriology has received, little, it appears, has been

thought of the weight of a micro-organism. This evidently is due to the fact that it is hard to conceive of it having any weight that can be

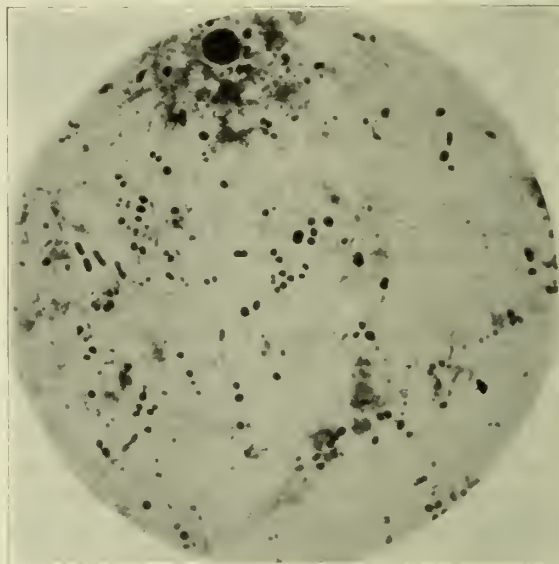


Fig. 1. First Run. Streptococci and Milk Bacteria.

determined by physical means, as well as to the apparent unimportance of the question.

However, that bacteria of all kinds do have an appreciable weight is easily demonstrated by

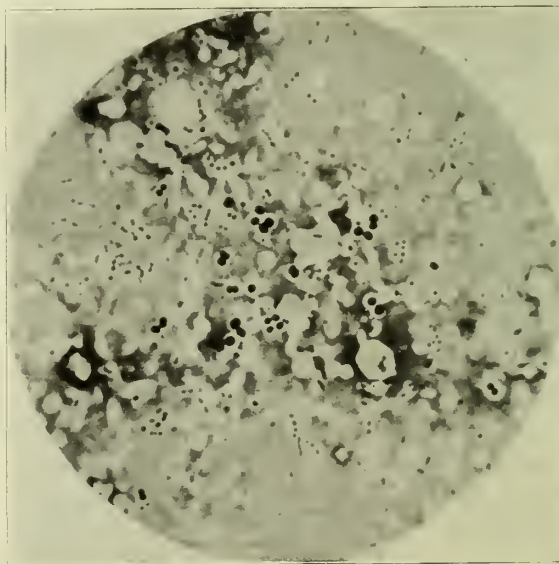


Fig. 2. Second Run. Streptococci and Milk Bacteria.

various gravity methods and especially through the effect of centrifugal force. That it is also a matter of great importance in the question of

*Read before the Warren County Medical Society, Nov. 12, 1915.

public health, and probably will be considered more so in the future, I will try to point out through a series of experiments I have conducted in the direction of determining relative weights of different species.

The clarification of milk, water and various



Fig. 3. Third Run. Streptococci and Milk Bacteria.

other food products is being done in many parts of the country, at the present time, by means of centrifugal machines, such as the cream separators and those of later make, especially designed for clarification only. These were primarily constructed with simply the thought in mind of their power to remove dirt and all heavier particles of matter from a fluid medium. Further study, however, of the residue left in them, after the process of clarification, has revealed that the bacterial contents of these fluids are also markedly affected.

Eckles and Barnes, through a series of experiments with the early makes of cream separators, at the Iowa Experiment Station, report that on an average of from 37 to 56 per cent of the organisms in milk are removed by centrifugal force. More recent experiments with improved machines have put these figures somewhat higher.

In consideration of such percentages of bacteria removed, from either milk or water, by machines that have primarily not been intended to meet the bacteriological question, it seems highly probable that centrifugal force can be developed to such an extent as to make mechanical sterilization, where

it cannot be carried out otherwise, practical, if not absolutely complete.

The foregoing figures also apply to bacteria in general. Little work has been done in the direction of determining specific results with different species of micro-organisms. Since the weight of bacteria is enough to make their precipitation from a fluid practical, can there not be a relative difference between the weights of different members, enough so as to make the question of clarification of milk or water more practical in dealing with certain ones than with others?

This, I have also found to be the case, and an important point that I have found is that the pathogenic bacteria, commonly met with, are precipitated much more readily than are the nonpathogenic. My experiments were conducted with the De Laval Milk Clarifier, which is so constructed that when a fluid is run through it the residue removed is left in the machine, making reliable determination of the number of bacteria removed and the calculation of the units of gravity for different ones possible.

The following constitutes my series of experi-

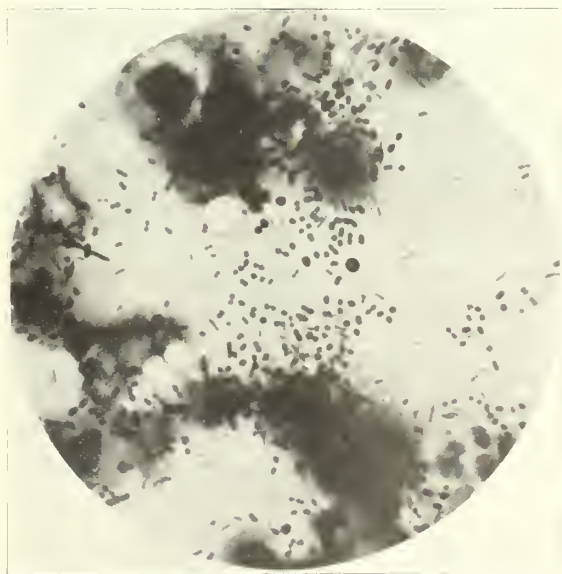


Fig. 4. First Run. Typhoid and Milk Bacteria.

ments and basing my unit upon the percentage of bacteria removed from a given quantity of fluid of the same specific gravity and with the machine running at the same speed, I have been able to get definite figures in regard to the weights of some of the more common bacteria.

No. 781. One gallon of milk almost at the point of souring and containing a very high bacterial count.

	Bacteria per cc before	Bacteria per cc after	Reduc. Souring per cent.	time 37°C
1st run	1,800,000.000			1 hr.
2nd run		800,000.000	56	2 hrs.
3rd run	800,000.000	100,000.000	89	3 hrs.
4th run	100,000.000	12,000.000	88	4 hrs.
5th run	12,000.000	240,000	98	5 hrs.
6th run	240,000	94,000	60	6 hrs.
7th run	94,000	32,000	65	7 hrs.

No. 782. Specimen of water containing a large number of bacteria and especially Colon bacilli.

Total number of bacteria per cc. before	Colon bacilli per cc. before	Total number of bacteria per cc. after	Colon bacilli per cc. after
4,000	170	1600	40
Reduction of total number of bacteria.....60%			
Reduction of Colon bacilli.....76%			

No. 783. Broth culture of Staphylococci.

Colony count per cc before	Colony count per cc after	Reduction per cent
60,000.000	6,500.000	89

Same culture using counting chamber to determine number of bacteria per cc.

Count before	Count after	Reduction per cent
160,000.000	8,000.000	95

No. 784. Broth culture of Typhoid bacilli.

Colony count per cc before	Colony count per cc after	Reduction per cent
20,000.000	8,000.000	60

No. 785. Broth culture of Streptococci.

Colony count per cc before	Colony count per cc after	Reduction per cent
14,000.000	280.000	98

No. 786. Broth culture of Typhoid bacilli.

Count on counting chamber per cc before	Count on counting chamber per cc after	Reduction
240,000.000	80,000.000	67%

No. 787. Broth culture of Staphylococci.

Count on counting chamber per cc before	Count on counting chamber per cc after
280,000.000	20,000.000
Reduction .....92%	

No. 788. Mixed culture of Staphylococci and Typhoid bacilli.

Count on counting chamber per cc before	Count on counting chamber per cc after
Staphylococci 140,000.000	10,000.000
Typhoid bacilli 120,000.000	40,000.000
Reduction of Staphylococci...92%	
Reduction of Typhoid bacilli...67%	
Total count per cc before 260,000.000	Total count per cc after 60,000.000
Total reduction.....76%	

No. 789. Broth culture of Streptococci.

Count on counting chamber per cc before	Count on counting chamber per cc after
1,120.000	500.000
Reduction .....95%	

No. 790. Broth culture of Colon bacilli.

Count on counting chamber per cc before	Count on counting chamber per cc after
42,000.000	20,000.000
Reduction .....53%	

No. 791. Broth culture of mixed bacteria from water.

Count on counting chamber per cc before	Count on counting chamber per cc after
44,000.000	20,000.000
Reduction .....54%	

No. 792. Broth culture of Streptococci.

Count on counting chamber per cc before	Count on counting chamber per cc after
405,000.000	30,000.000
Reduction .....93%	

No. 793. Broth culture of Pneumococci.

Count on counting chamber per cc before	Count on counting chamber per cc after
200,000.000	10,000.000
Reduction .....95%	

No. 794. Broth culture of Staphylococci.

Count on counting chamber per cc before	Count on counting chamber per cc after
600,000.000	10,000.000
Reduction .....95%	

No. 795. Broth culture of Diphtheria bacilli.	
Count on counting chamber per cc before	Count on counting chamber per cc after
400,000,000	40,000,000
Reduction .....90%	

No. 796. Streptococci in Milk.	
Average number of Streptococci in microscopic field in smears from sediment.	Average number of milk bacteria in microscopic field in smears from sediment.
1st run 700	100
2nd run 292	40
3rd run 19	19

No. 797. Typhoid bacilli in milk.	
Average number of Typhoid bacilli in microscopic field in smears from sediment.	Average number of milk bacteria in microscopic field in smears from sediment.
1st run 88	276
2nd run 182	324
3rd run 42	157

Summary: Taking all of the foregoing experiments together, we get a general average of reduction for all the organisms of 78 per cent, which agrees very nearly with quoted figures of others I have found. Specific results with the various organisms alone, however, show there is quite a margin of difference between the percentages.

	Per Cent.
For Streptococci the average is.....	96
Pneumococci	95
Staphylococci	94
Diphtheria bacilli.....	90
Typhoid bacilli	64
Colon bacilli.....	59
Saprophytes	57

Considering that the percentage of reduction is in accord with the relative weight of an organism, in centrifugal units, it may be stated that a	
Streptococcus weighs.....	96
Pneumococcus	95
Staphylococcus	94
Diphtheria bacillus.....	90
Typhoid bacillus.....	64
Colon bacillus.....	59
Saprophytes	57

While in determining the number of bacteria in a culture there is always a big room for error, in using the counting chamber, this is reduced to

the minimum. Throughout the experiments I could not help but be convinced of the greater density of the pathogenic organisms, especially the Gram positive ones.

Streptococci are especially heavy, and it might safely be stated are relatively the heaviest of all the common bacteria. Not only are the singular cocci thrown out most readily, but the long chains, naturally meeting some resistance in passing through the fluid, in the process of clarification, are equally as numerous found in the residue. In experiment No. 796 streptococci, to begin with, predominated in numbers of 7 to 1 against the large bacteria of milk and in three

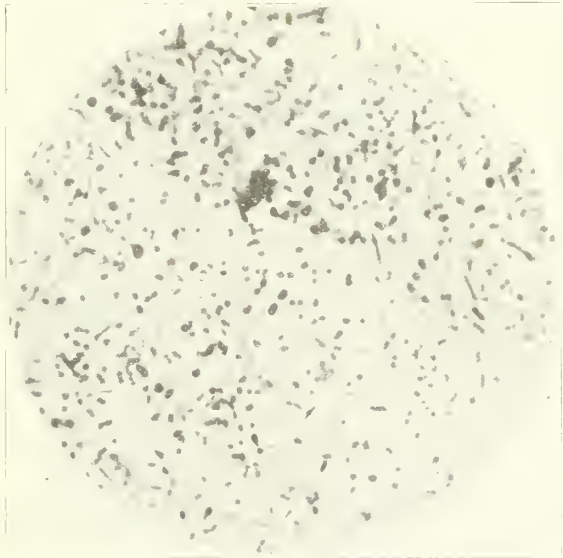


Fig. 5. Second Run. Typhoid and Milk Bacteria.

runs of the specimen appeared in equal numbers in the smears from the residue. This relatively greater weight of streptococci is also borne out by experiments of Rosenow, mentioned in the *Journal of Infectious Diseases* of December, 1912. In analyzing a number of specimens of slime that had been taken from the clarifying machine after a quantity of milk had been run through it, he found that plate cultures showed more colonies of streptococci than of any other organisms. As cultures from milk directly usually show the reverse, it is evident that in the case of the residue, streptococci simply had been taken out to a higher percentage.

Staphylococci, pneumococci and diphtheria, likewise, fall readily to centrifugal force. Facts point plainly to a greater density of typhoid

baecilli than of colon and of saphrophytes. While the difference is not great, it has been appreciable in all the experiments I have conducted. Especially do the very large bacteria of milk appear to be relatively light in weight. While some of these are many times as large as a streptococcus, it is very plain that they are not nearly as compact and have more of a tendency to float rather than to sink.

Since streptococci, pneumococci, staphylococci, diphtheria and typhoid bacilli constitute largely the group of offending organisms we have to deal with in milk and water, their relatively greater weight makes it very promising of an easy means of eliminating such numbers as contamination would be likely to show.

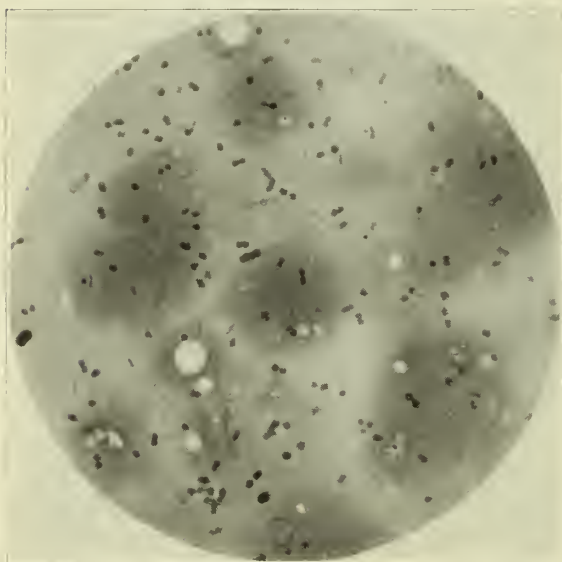


Fig. 6. Third Run. Typhoid and Milk Bacteria.

While pasteurization of milk remains the safest way of eliminating the consequences of bacterial contamination, it cannot well be carried out in the country or in private homes and especially meets its objection where milk is furnished in very large quantities to institutions, etc. Boiling of water and other means of making it safe for drinking purposes likewise have many points of objection. I am sure one of the greatest points in practical sterilization of these food products, all around and everywhere, lies in the question of micro-organic weight.

Greater weight naturally points to a greater density, as I have already stated; this evidently has something to do with the various staining

properties and cultural characteristics of bacteria. It is possible that it is owing to the density of the Gram positive organisms that when they are once stained they do not give up the stain so readily again as do the Gram negative ones. Whether density has anything to do with pathogenicity in any way, is hard to say. It is, however, quite possible that this density offers some protection to an organism against the protective agents of the blood, as well as of the tissues in general.

Figs. 1 to 3. Smears made from the residue of three consecutive runs of milk showing relatively greater reduction of number of streptococci.

Figs. 4 to 6. Smears made from the residue of three consecutive runs of milk showing relatively greater reduction of typhoid bacilli.

PROTEID NUTRITION: THE OLD AND THE MODERN SCHOOLS.*

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With the discovery of focal infections and of the selective action of bacteria, the pendulum of medicine swung in the direction of looking for and treating the primary etiological factor. But, as it was so often in the history of medicine, the pendulum of a new discovery swung a little too much in one direction. In the present case, it seems to me, it swung too much in the direction of bacterial etiology. The fashion-like changes and extremes have rolled medical science for centuries on the waves of human experience and experimentations, and in its struggle for truth medical science has failed to notice another etiological factor which was always nearer for our observation and which works on the human organism daily for good or for evil. This etiological factor is no doubt nutrition.

To know what makes normal nutrition is to know how to recognize and correct evils due to abnormal nutrition. Therefore, the importance of the subject.

The scientific study of nutrition started with Liebig, and since, the views held by physiologists have undergone different changes. So far as carbohydrates, fats and mineral matters are concerned, there is a practical unanimity among

*Read before the Northwest Side Branch of the Chicago Medical Society, Jan. 7, 1916.

physiologists. The bone of contention is the proteids. The object of this paper is to give you a short review of what has been done by biologists on the field of proteids, and thus help us to modify our views and practices in our daily advice to patients in relation to nutrition, so far as proteids are concerned.

Justus Liebig, who practically was the first to make a scientific study of our diet, seeing that nitrogen enters into the composition of all organic bodies and forms, a necessary part of our food, assumed that nitrogen is the most important element for the support of life, and is the only source of muscular power. "Experience teaches us," he writes in the celebrated Chemical Letters, "that in organisms there is only *one* source of mechanical power, namely, the conversion of living parts of the body into organic compounds by oxidation." In another place he says, "all organic tissues which develop power in the body originate from the albumin of the blood. But the albumin originates from those parts of our food which contain the elements for its formation. Evidently then, the source of mechanical activity (or power-producing element) must be traced to the nitrogenous part of our food; the non-nitrogenous part (fat and carbohydrates) serves only to produce heat." Of course, meat and eggs and other proteid foods were hailed as the most important part of our nutrition.

With the further development of science, when the correlation of physical forces became a generally accepted fact, and when the celebrated principle of the conservation of energy remodelled modern physics, opposition began to develop to Liebig's theory, which found its final collapse in the classical experiment of Professor Frankland of England and Professors Fick and Wislicenus of Zurich. Since then it has been firmly established, first, that the source of muscular power, or of mechanical activity, of our organism is not the proteid or nitrogenous food, but the carbohydrates and fats; and, second, that nitrogenous food serves mostly as the plastic element for repair and building up of the tissues. Though this was proven conclusively, and is at present accepted by all physiologists, the intelligent laity and even physicians still continue to think that meat and generally a high proteid diet is necessary for every working man.

But the biologists did not rest on this discovery, and the next step was to define the amount of proteids necessary for daily consumption, and the relation between the proteid and carbohydrate intake.

Carl Voit of Munich, a worker for years on the question of nutrition, is the standard bearer of the era of high proteid intake. His observations resulted in the well-known "Voit's Formula" or dietetic standard:

$$118 \text{ Grams P (105 absorbable)} + 56 \text{ Grams F} \\ + 500 \text{ Grams C} = 3000 \text{ Cal.}$$

Lichtenfeld, studying the nutrition of Italian laborers, found that 110.5 grams of proteid were used daily and the total caloric value of the food was 2698 Cal. Molescott, Ranke, Pettenkoffer, Forster, Hultgren and Landergren (189 grams of proteid), Landergren, Studenmund, Schmidt and our own Atwater (125 grams of proteid) and some others have furnished dietetic standards with approximately a little more or less than Voit's. Armand Gautier, author of the latest and possibly the best book on dietetics, finds that 110 grams of proteid are necessary daily for the average working man; he admits that this amount can be reduced to 78 grams for easy work, but for hard work 135 grams are necessary.

All these dietetic standards are made from observations on national dietetic habits and on army and prison diets.

While the standard worked out from observation of national dietetic habits by the above named leaders of science may be taken as showing quite conclusively the dietetic standards adopted by mankind, there is no evidence whatever that they represent the real needs or requirements of the body. We may even question whether simple observation of the kinds and amounts of food consumed by different classes of people under different conditions of life have any very important bearing upon this question. They throw light upon dietetic habits, it is true, but such observations give no information as to how far the diets in question serve the real needs of the body.

Take, for example, the Russian miners here and in Russia, doing the same kind of work and working even more hours in Russia than in the United States; their diet in Russia is very poor in proteids, while in the United States (from my per-

1. Chittenden's "Physiological Economy in Nutrition."

sonal observation in Westville, Illinois), a miner consumes from 2 to 5 pounds of meat a day.

Dissatisfaction with this method suggested experimental work on individuals to get to the amount of food necessary for the real physiological needs of the body—not more and not less, because in both cases the organism in a long run will have to suffer, as over-feeding has its punishments as well as under-feeding. Carl Voit in 1889 reported an experiment on two vegetarians conducted by E. Voit and Constantini. 48.5 grams of proteid was sufficient in these cases to maintain the nitrogen balance. Hirshfeld, a young man of robust physique, experimented on himself and found he could maintain nitrogen-equilibrium on 45 grams a day. Experiments lasted 15 and 20 days. Kumagawa experimenting on himself and in his studies of the diet of the Japanese (a purely vegetable diet) found that 54.7 grams of proteid daily was enough to keep the nitrogen balance. Nakahama in the same year reported his observations on the diet of 13 German laborers in Leipzig. He found that their food contained on an average 85 grams of proteid. Carl Voit criticised these reports and found them of no value, as the men were of comparatively light body weight and not well nourished. Carl Voit's experiments on human beings are limited to 15 cases, each experiment being continued for from 1 to 3 days. The result in each case being a negative nitrogen balance; this still more confirmed Voit in his belief of the necessity of the high proteid intake. The attention given by the scientific world to those experiments is due only to the great name of Carl Voit. The incompleteness of the experiments, the illogical conclusions made by Carl Voit would never have been known to the world had it not been for Voit's name connected with them.

The experimentations in this direction, notwithstanding Voit's attitude, were forcing their way towards a low proteid intake. Kellner and Mari, Caspari, Klemperer, Peschel, Caspari and Glaessner, Siven (Scandinavian) and many others in their experiments reduced the proteid intake from Voit's 118 grams to 80-70-60, and even as low as 45 grams. Voit and many other physiologists were all the time objecting to any diminution of the daily standard of 118 grams of proteid. Though Voit's voice in the question

of diet was still predominant, the germ of rational experimental investigation settled in the scientific minds, and the investigations for the finding of the minimum amount of proteid food necessary for our organism are still going on and yearly with greater vigor. But, as is always the case, opposing views do not stop so easily, and the cry of "Safety First" was raised.

In 1893 the celebrated experiments of Munk and Rosenheim were published. They fed dogs on a low proteid diet, but with an abundance of carbohydrate and fat. The dogs after 6 to 8 weeks suffered loss of weight, strength and vigor; absorption from the alimentary tract was diminished; gastric and intestinal diseases developed; followed by death of the animals. These experiments have strengthened in the minds of Voit's followers the idea of the necessity of keeping up the high proteid standard for the human being. Chittenden commenting on these experiments says: "If these results were really due to the low proteid diet, they suggest a grave danger, which must not be lightly passed by." And in analysing further the fatal results of the above mentioned experiments, he comes to the conclusion that the death of the animals was due to the monotony of the diet and to the abnormal hygienic or sanitary conditions under which the dogs were kept. But the main cause of the fallacy of these experiments, I think, lies not in the supposed explanations of Chittenden, but in the fact that a carnivorous animal, adopted by Nature to a high proteid intake, was fed on an unnatural and abnormal diet, and naturally nothing but disease and death could be expected from such procedure. But to apply this deduction to a human being which does not belong to the class of carnivora is the highest folly any intelligent man can conceive. All the other experiments of the defenders of the high proteid intake are similarly illogical or incomplete.

While medical science can point out an array of ailments due to an excess of proteid in our food, nobody of the investigators could find any pathological condition in subjects who lived on a low proteid intake for years. Voit himself in describing the vegetarian under his observation states that he (the man) was well nourished, had well developed muscles, and experienced no disagreeable effects, though he lived for *several years* on a low proteid intake (51½ grams) and

was found by Voit in nitrogenous equilibrium. Jaffa's experiments and observations² on the fruitarians of California, including men, women and children, show that they were kept in nitrogen balance on a daily intake of 10 grams of nitrogen ($62\frac{1}{2}$ grams of proteid) for a period of 5 to 8 years.

But the crowning work in bringing the collapse of Voit's dietetic standard must be credited to our own R. H. Chittenden and to the Danish Hindhede. Chittenden in his classical experiments conducted for months on different classes of men has proven that they were kept in nitrogen equilibrium on 60 grams of proteid daily. His book on "Physiological Economy in Nutrition" has especially drawn the wrath of the English Sir James Crichton-Browne, the author of the book "Parsimony in Nutrition." If I will say that the value of this book is in its "noise-making" quality, and not in its sound scientific reasoning, I will have said all that can be said about it. Chittenden is well known in the scientific world through the work he has done, and I will say no more about him. Hindhede is the last comer on the field of scientific research about nutrition. It would not be amiss to say a few words about his personality. Born of poor parents, farmers in Jutland, and of weak physique, he studied medicine, and due to his poor health, began to pay attention to the question of diet and to experiment on himself, when he discovered the fallacy of the old theory of high proteid intake. For 16 years he continued experimenting on himself and others. His work became so widely known in Danish society that the government of Denmark built a laboratory for Hindhede's work and appointed five assistants and plenty of money to further the work of investigations into the nutritive economy of the Nation propagated by Hindhede.

He brought in quite opposite views than those held by Voit's school. He insists upon food of a low proteid value. He divides food stuffs into three classes, according to their importance for the human organism.

1. Potatoes and roots, bread and other cereals, fruit, butter (cow's butter, margarin, cocoa-butter, lard).

2. Milk, eggs, young vegetables and pulses

(spinach, brussel sprouts, young cabbage, green peas, green beans, etc.).

3. Heavy or old vegetables (cabbage, carrots, turnips, onions, old beans, etc.), peas, beans, sugar and meat.

Hindhede started his experiments with potatoes and butter three times a day and between meals strawberries and a small amount of milk. When starting he decided to drop this diet as soon as the slightest disagreeable symptoms appeared. But one week passed, and two and three more and not only did he not get weaker, but felt better, stronger, and with greater endurance in his physical (bicycle riding) and mental work. His favorite food became potatoes, looked upon until now as one of the poorest foods, especially since the classical experiment of Rubner on the Bavarian soldier. This experiment continued for three days. The soldier was ordered to eat $31\frac{1}{2}$ kilograms a day (4078 grams). To make it more pleasant for the soldier this amount of potatoes was served in different forms, boiled, fried, mashed, etc. The order was faithfully fulfilled by the soldier; he was eating all day long and tried to get rid of it as quick as possible. The result of it was intestinal fermentation, diarrhea several times a day and once or twice in the night, and a loss for the three days of 3.1 grams of nitrogen. Rubner thought that this loss would continue and stopped the experiment. Since, the renown of the potato was spoiled, Hindhede experimented with the potato for 40 days, using only 2533 grams. In Rubner's experiment the excrements (feces) daily were 635 grams. In Hindhede's only 92 grams. Why such a difference? Because, says Hindhede, he ate when he was hungry, chewed his food carefully; 100 grams in 4 minutes, and stopped eating as soon as hunger was gone, i. e., did not over-eat or over-stuff himself. While Rubner did not succeed in bringing the soldier into nitrogen equilibrium on 4000 grams of potatoes, Hindhede has done it on 2533 grams. If in his 40 days' experiment he would have stopped on the 4th day he would have been compelled to come to the conclusion that living on 2000 grams of potatoes and 120 grams of butter, and losing daily 19 grams of nitrogen, he is undergoing a physical loss and degeneration which would bring him to sure

² U. S. Department of Agriculture, Bulletin No. 132.

death; but here is what the following 36 days showed:

From 16th to 20th of May minus 2 grams, therefore, for 4 days lost 8 grams.

From 20th to 28th of May, no grams.

From 28th to 5th of June, minus 2 grams, therefore for 8 days lost 16 grams.

From 5th to 13th of June, minus 2 grams, therefore for 8 days lost 16 grams.

From 13th to 21st of June, plus 5 grams, therefore for 8 days plus 40 grams.

In other words, instead of losing, a complete nitrogen equilibrium was established. During these 40 days of potato experiment the daily average of proteid taken in was 40 grams, of which only 32 grams was assimilated i. e., the proteid intake was four times less than Voit's standard. The subject of the experiment was a strong healthy fellow, 26 years old, weighing 68 kilograms, working as a laboratory porter from 6 a. m. to 10 p. m., in the same time he was messenger and had to take long bicycle rides. And this was not a single experiment but repeated on other persons for longer intervals. Hindhede's experiments show conclusively that it takes a certain time for the organism until the nitrogen equilibrium is established independently of the amount of proteid taken in, whether 200 or 30 or 40 grams. The mistake of the previous physiologists was that seeing the deficit of nitrogen they too early stopped their experiments.

Hindhede with his experiments does not want us to think potatoes and butter is an ideal diet. He is far from it. The main thing he was after was to get at the minimum of proteid food necessary. He himself for years lived healthily on from 50 to 60 grams of proteid a day. The California vegetarians lived for years on 70 to 80 grams a day. Albu's vegetarian woman for 6 years lived on 34 grams of proteid a day on which she regained her lost health and continued in good health. I will not discuss now what Chittenden's and Hindhede's work means from the economical point of view. I brought before you the present status of science in relation to the proteid intake in our nutrition. I think enough has been done in this direction to allow us practising physicians to use the deductions of the experimental work in our daily advice to our patients, and so far as I am concerned, or rather as my experience is concerned,

I have yet to see a pathological condition induced by a low proteid intake.

INDICATIONS FOR CHOLECYSTECTOMY AND CHOLECYSTOSTOMY.*

CLIFFORD U. COLLINS, M. D.

PEORIA, ILL.

In the surgery of the gall-bladder the surgeon must strive first, to obtain an operative recovery for the patient, in which the patient passes through the operation safely; and second, a symptomatic recovery, in which the patient is relieved of all the symptoms caused by the disease. It is not sufficient in this modern time to be satisfied with an operative recovery only.

In the early days of gall-bladder surgery up to a few years ago, surgery was considered only for the most serious and patent forms of gall-bladder disease, the terminal forms of the disease, such as acute cholecystitis, severe gall-stone colic, and hydrops of the gall-bladder.

It has only been in recent years that the surgical treatment has been applied to patients suffering with the chronic, and more insidious forms of gall-bladder disease.

In the first class of acute and manifest gall-bladder disease, the patients are very ill and suffer acutely, while in the second class of chronic gall-bladder disease, the patients are not in so much immediate danger to their lives, but suffer more or less constantly from some distress and soreness in the right upper abdomen and from secondary symptoms which may be located in the stomach, intestines, joints, heart, chest and brain.¹ About two years ago I went over the records of the patients who had been operated on by Dr. Weber, my associate, and myself for diseases of the biliary tracts. A group of 196 patients, who had been operated on for diseases of the biliary passages, were chosen and letters were sent to them, in an endeavor to find out the ultimate results of the surgical treatment.

This investigation was instituted primarily to try and determine in what conditions the gall-bladder should be retained and drained (cholecystostomy) and in what conditions it should be removed (cholecystectomy).

*Read before the Warren County Medical Society, at Monmouth, Ill., Nov. 12, 1915.

1. Babcock, W. W.: Journal A. M. A., October 23, 1915.

It was an endeavor to find out our symptomatic results that prompted us to send out letters to our patients.

On the 196 patients represented in the series there were done 147 cholecystostomies and 30 cholecystectomies. It will be seen that 17 per cent. were cholecystectomies, which is a much lower proportion than is reported by some surgeons.

The truth is I have started the investigation to prove that those surgeons who were reporting the removal of the gall-bladder in 80 per cent. of their patients suffering from gall-bladder disease, were entirely too radical; but I ended by convincing myself that 17 per cent. of cholecystectomies was not giving our patients the best ultimate results.

Letters were sent to the 147 patients who had recovered from the cholecystostomies asking if they had had any trouble with the gall-bladder or stomach since the operation. One hundred and two replied. Seventy-four said they had been perfectly well so far as their gall-bladder and stomach were concerned. Fifteen complained of some pain in the gall-bladder or stomach, or both, while thirteen complained of still having severe pain at times in the region of the gall-bladder or stomach or both.

Thus we found that twenty-eight, or 27.4 per cent.—more than one-fourth—of the one hundred and two patients who had had a cholecystostomy done, who had replied to our letters, were not entirely relieved from their symptoms. It is interesting to note that our results were almost the same as Swope's² who reported 74.8 per cent. cures after cholecystostomy, or 25.2 per cent. who were not well afterwards.

The records showed that 85.2 per cent. of those patients operated on by us had gall-stones, and some of the remaining 15 per cent. had acute cholecystitis; so we had only operated on a very small per cent. of patients having chronic cholecystitis without gall-stones.

We felt that this proportion was too small and that we must have been too conservative or too timid regarding this class of cases. The conscientious surgeon dislikes very much to subject a patient to an operation unless he feels that he will find at the operation sufficient pathologic evidence of the necessity for the operation. We

had evidently not operated until the evidence was most convincing that we would find ample cause for the operation.

In this series were ten patients on whom we had operated and found a seemingly normal gall-bladder and had closed the abdomen without doing anything to the gall-bladder.

We are satisfied now that some of these ten patients, if not all, had diseased gall-bladders. Their symptoms persisted after the exploratory incision.

A few years ago we were all taught, and believed, that a thin-walled blue gall-bladder was a normal gall-bladder. We now know that this is not necessarily the case. Probably the best method of determining a diseased gall-bladder when there is any doubt after the abdomen is open, is by examining the glands along the cystic and common ducts, as pointed out by Mayo³. If they are enlarged the gall-bladder or pancreas is infected. But the gall-bladder may be infected even if they are not enlarged.

About the time we were conducting this investigation a patient came to us on whom a diagnosis of cholecystitis had been made. The operation revealed a blue thin-walled gall-bladder which looked so normal that we decided a mistake in diagnosis had been made and closed the abdomen after removing the appendix. Her symptoms were not relieved. She complained of mild attacks of pain and soreness in the right upper abdomen. After keeping her under close observation for several weeks we found that she had a temperature of 99° to 99½° nearly every day. At three different times her white blood count was 24,000, 18,000, and 17,000. Thus there were definite indications of an infective process in the body and the local distress and tenderness pointed to the gall-bladder. Another operation was advised and accepted. When the abdomen was opened the gall-bladder still had a seeming normal appearance and the glands along the cystic and common ducts *were not enlarged*. However, nothing else could be found to account for the symptoms so the gall-bladder was removed. It proved to be a "strawberry" or chronically inflamed gall-bladder and the appearance of the mucous membrane gave plain macroscopical evidence of the disease.

However, the information given by these

2. Swope, L. W.: Amer. Jour. Obst., November, 1915.

3. Mayo, C. H.: Trans. Western Surg. Ass'n, 1913.

glands is so generally correct that they furnish a very valuable means for determining an infected gall-bladder after the abdomen is opened.

These letters we sent out revealed another interesting thing. Many of our patients were seemingly perfectly well for about a year after the gall-bladder was drained. After that period they began to have distress and discomfort in the region of the gall-bladder, again. At least three years should elapse before a patient is pronounced cured after a cholecystostomy. One of our patients was a physician in whom we found gall-stones and removed them and drained his gall-bladder. At the end of a year we received a letter from him saying that he had been perfectly well during that time. Two weeks after he wrote the letter he was taken with distress in the right upper abdomen with a sensation as though something was being squeezed in that region. Several of our patients have described this squeezing sensation. Some describe it as a "drawing" sensation. We have found that it means a cholecystitis. This physician was in another part of the country and after suffering several months he had his gall-bladder removed by another surgeon with complete relief of all his symptoms.

As I stated before, the investigation was started with the intention of proving that we had been correct in making cholecystostomy the operation of choice, but the results of the investigation, together with some experiences with patients similar to those narrated above, convinced us that cholecystectomy should be the operation of choice, and I think today we are removing the gall-bladder in fully 85 per cent. of the patients coming to us with gall-bladder disease.

One of the objections urged against cholecystectomy is the greater mortality in that operation as compared with cholecystostomy. A cholecystectomy is undoubtedly more difficult to do than a cholecystostomy, but this is like a great many other things. We have found that frequent operations by a definite technique reduce the difficulties and danger very much.

A glance at the anatomy of the gall-bladder enables one to see, readily, why a few days drainage at the top does not cure a chronic inflammation. The gall-bladder is a sac with a small

tortuous passage leading from it. It is so tortuous that one can hardly ever pass a probe through it, at least that has been our experience. The bile must find its way out with some difficulty. When the bile is thickened with mucus or the products of inflammation, the difficulty is increased. We all agree that when an appendix is strictured so its contents cannot easily escape, it had better be removed. When the contents of the gall-bladder are thickened by chronic inflammation, or the lumen of the cystic duct lessened by the inflammation extending to its mucous membrane, that gall-bladder had better be removed. A few days drainage at its fundus is not going to permanently relieve the chronic inflammation.

Then the indication for cholecystectomy would seem to be a chronic inflammation of the gall-bladder with or without gall-stones.

In acute cholecystitis, with or without gall-stones, it may be better to do a cholecystostomy, with the reservation that a cholecystectomy will be done later should the inflammation persist and become chronic.

If the patient has a stone in the common duct with a suspicion of pancreatitis, a cholecystostomy may be a wiser primary operation. In greatly debilitated patients a cholecystostomy is simpler and safer until improvement warrants a cholecystectomy.

In patients having gall-stones without inflammation, a cholecystostomy may be done. However, in those patients it may be that in the future we may open the gall-bladder and remove the stones and close the opening with sutures. This was done on three patients in this series. The gall-bladder contained one stone, which was discovered during an abdominal operation for other causes, and did not appear to be diseased. A so-called "ideal cholecystostomy" was done, the gall-bladder being opened, the stone removed, and the incision in the gall-bladder snugly closed with sutures. The three patients made an uneventful recovery.

I feel sure that in the near future the chronically infected gall-bladder, causing more or less vague secondary symptoms, will be searched out, diagnosed and removed before the terminal stages, such as gall-stones, hydrops, empyema, perforation and gangrene have been reached.

CONCLUSION

1. The presence or absence of stones in the gall-bladder should not be considered in deciding to remove or leave a gall-bladder. It is entirely a question of infection.

2. An infected gall-bladder had better be removed if there are no contra-indications.

3. The location of a stone in the common duct may be a factor in the decision. If it has caused a recent attack of jaundice, a possible pancreatitis should be considered, and, if present the gall-bladder should be retained and drained, at least temporarily.

4. An acutely inflamed gall-bladder due to a virulent infection, evidenced by the clinical symptoms, had probably better be retained and drained. A cholecystostomy is safer in these acute cases than a cholecystectomy. A cholecystectomy may be safely done after the acute symptoms have subsided, if it is necessary.

5. The small proportion of gall-bladders which contain stones with no present evidence of infection, may be drained, although it may be safe in these to open the gall-bladder, remove the stones, and close it without drainage.

6. The general condition of the patient may make a simple cholecystostomy the wiser procedure until the general condition improves.

7. The history is not only the largest element in making the diagnosis, but is also of great importance in deciding the question of removing or retaining the gall-bladder. If the history shows persistent symptoms, indicating chronic infection, that gall-bladder had better be removed.

8. In spite of these conclusions it takes the highest surgical judgment to decide, at times, which will give the most ultimate benefit to the patient, the retention or removal of his gall-bladder.

;

What gift has Providence bestowed on man that is so dear to him as his children?

Let's oftener talk of the noble deeds and rarer of the bad ones, and sing about our happy days, and not about the sad ones.

The way to gain a good reputation is to endeavor to be what you desire to appear.

In speaking of persons, if you cannot say a pleasant word, say nothing.

Dr. E. M. Webster, for more than twenty-five years in Chicago, well known in the fields of medicine and surgery, and at present one of the trustees of the Chicago Medical Society, has recently removed to Oconomowoc, Wis. He goes to this new field as Medical Superintendent of Edgemoor Sanitarium, an institution recently established, owned and controlled by a Board of Trustees composed of leading business men of Chicago, Buffalo and Detroit.

This is a private sanitarium and will be devoted to the treatment of so-called "subjective insanity," or "psychic subjectivity," including various forms of delusional insanity, but especially those forms arising from subjective suggestion.

During the last twenty years Dr. Webster has devoted himself to a critical study of the subject of insanity in all its various aspects. His experience has convinced him that a large percentage of the cases of insanity generally classed as "incurable" will yield to treatment; and he hopes to demonstrate to the medical fraternity the truth of his convictions through his work in this new institution, and promises to report results, from time to time, through the columns of this Journal.

We shall await with interest his reports, and in the meantime wish him every success in his new field.

IODINE IN PNEUMONIA.

In *Medecin de Paris*, February, 1914, Professor Fontoyont, head of the Medical School at Tananarivo, collaborating with Doctor Rotou, Superintendent of the Tananarivo Hospital, dwells upon the value of colloidal iodine in the treatment of pneumonia:

"By employing colloidal iodine," he says, "we have succeeded in reducing the mortality among our pneumonia patients to the European level and in shortening the sojourn in hospital to one-third of its former length.

"We have injected colloidal iodine intramuscularly without causing either pain or reaction. In some cases we have administered doses of 20 centigrammes of colloidal iodine. It seems to us that this dose should be increased to 40 cgm. and 2 cc. respectively, to produce still better results."

Concluding, Fontoyont expresses the belief that "Colloidal Iodine, if administered in adequate doses, promises rapid defervescence in pneumonia; shortens the attack; diminishes the mortality percentage, and prevents most of the usual complications."

Conceit is to nature what paint is to beauty. It is not only needless, but impairs what it would improve.

Every failure teaches a man something if he will learn.

What you leave at your death let it be without controversy, else the lawyers will be your heirs.

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MARCH, 1916

Editorials

A PHYSICIAN IN THE LEGISLATURE

On another page will be found an article by Dr. W. F. Burres, member of the House of Representatives from the 24th District. Dr. Burres has been doing excellent work in the legislature, and is positive there should be more doctors sitting in the House of Representatives. Every doctor should read this article, and then make an effort to elect other doctors to similar places in the legislative body of the state. The doctor read this paper before the Champaign County Medical Society, and the *Champaign County Gazette* gave an unusually good report of the meeting, quoting Dr. Burres' paper quite extensively. If more work of this sort were done, it would be much easier to enact favorable medical legislation.

DINNER IN HONOR OF DR. JAMES A. CLARK.

On Thursday evening, February 24th, the Medical Fraternity of Chicago chose to honor one of its members, Dr. James A. Clark, ex-president of the Chicago Medical Society.

Dr. Clark has a host of medical friends, and

these with others outside of the profession were glad to show in this manner appreciation of Dr. Clark's work as president of the Society, of him as physician, and of him as their friend.

Dr. P. J. H. Farrell acted as toastmaster, and toasts were responded to by Dr. Charles J. Whalen, Judge Hopkins, Dr. A. J. Ochsner, Dr. Sadie Ray Adair, Dr. A. A. O'Neil, Dr. John Dill Robertson, and Dr. I. C. Gary.

Dr. Clark responded by expressing appreciation of the honor conferred upon him by making him president of the Society, and by tendering him the banquet, and thanking them all for the hearty support given him during his administration.

He then expressed the hope of seeing Chicago the greatest medical teaching center of the world. If this hope is realized it will come about because of the work started by Dr. Clark.

After this part of the function was over, the remainder of the evening was spent in dancing and renewing old acquaintances.

CANCER COMMISSION MEETING.

President Lillie announces a meeting of the Cancer Commission, created at the last meeting of the Illinois State Medical Society at the Beardsley Hotel, East St. Louis, Monday, May 15.

All members of the Society who are interested in the subject of cancer, especially such as have made a bacteriological study of the pathology, are invited.

THE TYPHOID SITUATION IN CHICAGO.

The heavy rain January 20-21 caused pollution of the water supply at the 68th street pumping station. The Department of Health issued immediate warning to "BOIL THE WATER" to the papers and by telephone to all schools in the district affected. It also advised the use of typhoid vaccine by all who had used the water. February 1-7, of sixteen cases of typhoid reported in the city none were in this district. February 8-14, eight cases out of nineteen were in the district. February 15-21 thirty-six out of fifty-four, and February 22-29, forty-six out of sixty-five were in the district. Less than twenty per cent. of the city's population resides in this district.

To understand the situation it is necessary to review the method of disposal of the district's

sewage. From 39th street south to 83rd street all sewers empty into an intercepting sewer. At the south end the sewage flows by gravity from 83rd street to 73rd street. A pumping station at 73rd street forces this to 39th street, where it is pumped by the Sanitary District Plant west on 39th street to the south branch of the Chicago river. From this point it follows the south branch to the drainage canal.

The shutting down of the 39th street pumping station by the Sanitary District at the time of the heavy rain caused the sewage to back up and put the 73rd street station out of commission and, incidentally, caused a seepage of sewage into the pumping wells of the 68th street water plant. Strenuous efforts were made January 21 to avoid this danger by the use of fire engines stationed at 73rd street, which pumped the sewage out of the sewer at that point onto the open prairie.

In the *Bulletin* of the Department of Health of February 26, the advice was repeated to use the vaccine prophylactic and the newspapers were posted from day to day as to the condition of the water.

The responsibility for stopping the pumps at 39th street is a heavy one for the Drainage District organized as it was for the very purpose of safeguarding the city's water supply.

THE ANNUAL MEETING.

To the Editor:

At a meeting of the Champaign County Medical Society, held in the parlors of the Beardsley Hotel on February 11, the committees appointed to make arrangements for the meeting of the Illinois State Medical Society to be held in this city, May 16, 17 and 18, next, reported gratifying progress, and all are looking forward to one of the best and largest sessions in the history of the organization.

Champaign has good railway facilities, is on the main line of the Illinois Central, leading from Chicago to Cairo, and an I. C. branch running west; a spur of the Wabash R. R. connects with the trunk line of that road at Sidney; the Big Four runs through our city connecting us with Peoria on the west and Danville on the east. In addition to these steam roads the Interurban connects with Danville to the east and St. Louis southwest.

Besides two commodious, first-class hotels, the Beardsley and Inman, Champaign, has five or more, smaller ones, where good accommodations can be had at cheaper rates.

With these facts in mind it can be said that no one need walk to get here; neither will one have to sleep under a tree after one arrives.

CHAS. B. JOHNSON,
Chairman Com. Arrangements.

ENTERTAINMENT FOR THE MEMBERS AND THEIR LADIES AT THE MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY TO BE HELD AT CHAM- PAIGN, ILL., MAY 16-18, 1916.

Tuesday, May 16—Twilight band concert, South Campus, University of Illinois, 6:30 p. m. A. A. Harding, director.

Wednesday, May 17—Luncheon for ladies at Women's building, University of Illinois, 1 p. m.

Wednesday, May 17—Organ recital at auditorium, University of Illinois, 7 p. m.

Wednesday, May 17—Moving pictures of Illinois as exhibited at the Panama exposition. Address by President Edmund J. James, under supervision of Geo. A. Zeller, M. D., Board of Administration, at Auditorium, 8 p. m.

Thursday, May 18—Official visit to University of Illinois, 2 p. m.

Regimental drill, 16-17-18, 4 p. m.

A. S. WALL, Secretary,
Local Committee.

A TRIBUTE TO DR. HENRY BAIRD FAVILL.

BORN AUGUST 14, 1860. DIED FEBRUARY 20, 1916.

ARTHUR M. CORWIN, A. M., M. D.
CHICAGO.

Medicine, politics, education, civics, culture, philanthropy—all of these have lost a mighty advocate in the untimely death of Dr. Henry Baird Favill.

It is rarely indeed that we find a physician well posted in the history of his profession and in vital touch with the proof sheets of medical science; extremely busy as a practitioner, enjoying the confidence and patronage of a large private practice and much in demand as a consultant; an able lecturer to medical students; a

leading spirit upon many important committees working for the national betterment of the profession and the public; a dominant force in economic, political and philanthropic movements; occupying numerous positions of trust; a writer and speaker of force, widely interested in human affairs. Such a man was Dr. Favill.

He was a splendid fellow in every way. If foes he had, they must have been hostile to his high ideals or jealous of his leadership rather than hostile to him. Personally he attracted men by his virile traits, his wise diplomacy, his fine sense of humour, his kindly attitude toward humanity, his ardent friendship for all outdoors and his keen interest in living things.

Blest with a rugged constitution which defied strain and stress, he was a man of commanding presence. When he rose to speak in any assembly, his tall, magnificent physique, athletic bearing, handsome face and features full of character aroused anticipation of what he had to say which was never disappointed. In later years, by much practice, he had mastered a clear, trenchant style of expression which went to the heart of things. Coupled with a natural power of eloquence, exceptional command of language and a voice full, resonant and musical, Dr. Favill had a certain grace and force about him that carried conviction and spoke for leadership.

He was proud of the Indian blood that flowed warm and red in his arteries; and I doubt not that the charm which Nature and outdoor life had for him and his love of animal life were part and parcel of this heritage.

In going he has left a void which it will be difficult to fill by any one individual. He has left a wide circle of real friends and ardent admirers in all walks of life. He has left a permanent impress of his life and character upon our times. Nor shall his noble influence cease with his going.

No one may do his best by slavishly imitating another; he can only be himself at best. But great men and women are invaluable sources of suggestion in developing the finest and strongest gifts we have. Dr. Favill sought to develop himself in service of others. He lived his own life in his own way. His personality was all his own. To emulate this attitude shall be worth while.

Go forth to be thyself, Oh, Man!
 Seek not to ape another's plan;
 For imitation crude but meets
 The needs of noisy parakeets
 And monkey folk, a thumbless nation,
 With thumbless grip upon creation.
 Go be thine only self, with will,
 And thus thy destiny fulfill.

MEDICAL PREPAREDNESS.

Self-preservation is the first law of nature. This is one of the axioms of human wisdom that is so plain and simple as to be often forgotten. The man, the organization, or the state, which is not ready to defend its existence, is not worth perpetuation and will surely fail; for there are always others, not only prepared for defensive, but also for aggressive action.

But, we are told, the consciousness of justice should be a sufficient security. So it would, did all men accept this dictum as a rule of action and conduct. Unfortunately, the world has not yet reached that lofty plane; there are men and nations, which by their actions, if not in plain words, proclaim that success is the only criterion of ethics; that might makes right. We had almost thought that idea past, but now the times give it proof. To such as hold no law except the law of force, force must be applied.

We all believe that war is a return to the barbarism of past ages; that it is the sum of all evils; and surely no one in this country would be bold enough to defend an aggressive war. But the time may speedily come, as it has come in the lives of other nations, when we must resort to force in order to maintain our existence, or perish as a nation. The examples of other nations whose existence is threatened need not be sought in history, they are before our very eyes.

There are pacifists among us who deprecate all talk of force, even as a last resort; yet it is doubtful if anyone of them actually believes his own doctrine. Should the great apostle of peace himself return to his home at night to find the house being ransacked by a burglar, it is true that he would probably not grapple with the thug and engage in a desperate personal contest; that would be unpleasant. He would merely step to the telephone and call a burly policeman; who would come prepared with both club and gun. Should he capture the burglar he would apply

another and very severe form of force in the shape of a prison. The peace apostle, although perfectly peaceable and just in his quiet home, has been obliged to resort to force in order to enjoy that peace. He and all other preachers of peace will approve of such a resort to force. It should hardly be necessary to point out that an army bears precisely the same relation to the nation that a police force does to the city. It is not maintained in order to attack any peaceful and law-abiding individual; but to protect the law-abiding from those who own no law. Preparedness is not only a right, it is a positive duty. He that protects not his own is worse than an infidel.

What is the especial part of the medical profession in the general duty of preparedness? It has several fields of action; in some of which it is already active and in others only slightly so.

All activities of the medical body leading to better hygiene, better health, the elimination of infectious diseases, the segregation of the unfit, and in general, the improvement of the human animal, contribute directly to preparedness. Physical efficiency lies at the very foundation of military efficiency. The medical profession has always taken the lead and largely carried on this work. The majority of the infectious diseases have been brought under control; many eliminated. The propagation of all of them has been restricted. The death rate of the civilian population has, in three centuries, been reduced from fifty to fifteen. The span of human life has been extended from twelve years to forty-five. The death rate of armies (from disease) has been reduced from twenty or thirty per cent. per annum to one or two per cent. All of these things contribute to military efficiency—provided advantage is taken of them.

There is another means of contributing to the defense of the country, open to medical men as well as others, and a highly important one. It consists in lending aid and influence to all patriotic societies, to such organizations as the boy scouts, to all institutions and measures designed to inculcate and preserve patriotism. While this side of national defense is not quite so basic as physical efficiency, it is fully as important. No nation has ever maintained itself long by means of a hired army. When the Roman army became a force of paid mercenaries Rome was near her fall. The real defense of any country

must be in the patriotism of its people; they must be willing to sacrifice not only wealth, but health and even life itself in order to maintain their homes and institutions inviolate. This country might today have a paid army of a million men and still not be safe. A paid force of a certain strength is always necessary, but the main reliance has always been, and will always be, the great body of citizens. When it comes to the last ditch every man must take his gun and go. It appears that in England some would not do that, voluntarily. It is to be feared there are similar men in our own country. So the religion of patriotism must always be taught.

These are general lines of effort for any and all medical men. There are others more special and specific. More today than ever before fighting is a highly skilled trade or profession. It can no more be picked up over night than the trade of a carpenter or the profession of a civil engineer. One might as well collect a dozen men at random and put them up to play ball with a national league team, as to send out raw volunteers to fight trained veteran troops. The comparison is not at all strained. Further, the situation is vastly complicated by the tremendous size of armies today. Formerly armies were numbered by tens of thousands, or at most by hundreds of thousands; today an army of less than a million men is hardly considered to be worthy of notice. Manifestly with increase of numbers come increase of difficulty in managing, in co-operation, in supply, in handling the wounded, in everything.

It is believed by those competent to judge, that in any war with a great nation we should need an army of at least one million men; in all probability this would only be a beginning. We had a million men under arms in the spring of 1865, fifty years ago. For this army there would be required ten thousand medical officers. We now have 450 regular medical officers, about the same number in the militia, and about 1,500 medical men in the medical reserve corps. Most of the latter have little or no training. They are reserves only in the sense that they have qualified in professional knowledge and have signified their willingness to serve in case of war. The surgeon-general of the army could instantly put his finger on so many men. Still some eight thousand men in addition would be required,

and for these no provision has as yet been made. The greater part of the medical corps would have to be raised by volunteers or otherwise. Such has always been the case. In the Spanish war nine out of every ten medical officers were volunteers; and in the Civil war nineteen out of every twenty. While speaking of the present medical reserve corps it should be noted that the medical corps of the army is the only corps or department that has any reserve body of officers of any kind.

Here then is work for medical men who have a military or patriotic inclination. The Army Reorganization Bill, now before Congress, will provide for a greatly enlarged medical reserve corps; either separate or as part of a general officers' reserve. It will be sufficiently large to officer the army required. It is believed that some plan for regular and adequate instruction and training will be provided, with pay for the time so spent. Also it is expected that rank will be granted, for service and training, up to and including that of major. All these features should prove acceptable and aid in securing a large corps of trained medical officers, ready to take the field at once in case of war, and in some degree prepared to render something more than mere professional service.

The training may begin with something like that at the Plattsburg camp, but will doubtless be improved and broadened until it becomes a real school of field service. While a month spent each year in such a camp would break into a practice, yet should the custom become general one would suffer no more than another; and, it would seem that a man sufficiently patriotic to make this sacrifice might secure some compensating reward. In England, before the present war, many medical men held positions in the territorials, taking part in the training periods; it is not believed that they suffered on account of the time so lost from their regular work.

The militia, or national guard, will almost certainly be improved and increased, giving positions to a certain number of medical men, requiring more time, but possibly more desirable than those of the medical reserve corps. The Red Cross Association seems also to be entering on an era of wider organization and greater activity than ever before. The Red Cross Societies of the European countries are carrying on vast

works, and are not able to respond to all calls on them. In our own country any great war would find our prepared medical organizations, however well planned, unable to completely cope with the situation. The Red Cross Association would have an abundance of work to do. Field and base hospitals should be organized and prepared for work. The United States, although the richest nation in the world, has been behind all others in the organization and preparation of units for immediate work in war.

The conditions in the world are today more grave than they have been in the memory of any man now living. The danger to our country from without is greater today than it has ever been before; and that danger seems to be increasing daily. We are in far more danger of war right now than was England on the first day of July, 1915. We fervently hope that war shall not come to us; but, hoping is not enough. The man whose buildings are in danger of fire does not stop with pleasant hopes. He prepares against what *may* happen. Let us do likewise, and let the medical profession be not behind.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

A VOLUNTARY ORGANIZATION.

The following report is given rather completely because of the importance of the subject, and because in the plan proposed there are several very undesirable features. While the organization has a worthy object in view, its proposed plan is impracticable because of legal obstacles. Probably no state licensing board could legally recognize certificates from such a voluntary, self constituted organization. Our members should read this report carefully. Because of lack of space, editorial comment will be reserved for a future issue.

At the joint session of the Council on Medical Education of the American Medical Association and the Federation of State Medical Boards of the United States, held in Chicago on February 8, 1916, the entire session was devoted to a symposium on "The National Board of Medical Examiners."

Dr. William L. Rodman, president of the American Medical Association, outlined the aims and purposes of the National Board and among other things said:

What are the reasons for a national board? Everyone will admit the impossibility of having a uniform standard where there are fifty states, some of these states having multiple boards. It is to protect men

who on account of ill health or sickness in their family, or for some other reason, wish to change their location that the national board provides them with a certificate which they can file away, and we hope in time will be accepted in many or all states of the Union. We cannot have a compulsory national board since the police powers are with the state, but a voluntary board is certainly feasible and can have general acceptance. It only requires reasonable concessions from the existing agencies. A national board to deserve and secure general acceptance, must maintain a higher standard than a board whose examinations can legally be made compulsory. The law contemplates and enforces only ordinary and average standards, so that this voluntary board should be placed on a much higher standard. A man does not have to take the examination of this board if he does not want to, and therefore the standard can be and should be made higher than if it were a compulsory board.

Should such a board be controlled by the government or be a federal body? The answer is that it is neither possible in fact nor desirable in theory. As a central board cannot have the endorsement of the government it should be allied with a teaching foundation of high standard and of national scope. This board is allied with the Carnegie Foundation, one of the widest scope, one which has done excellent work in elevating the standards of general and preliminary education. The Carnegie Foundation has given the board \$15,000 a year. The Army Medical Museum has provided spacious rooms for conducting the examinations in a building which contains the largest medical library and one of the best collections of pathological specimens of America. These are available to the applicants while in Washington preparing for the examination. The Army and Navy medical schools and laboratory of the Public Health Service offer more than ample facilities for conducting a thorough oral, written and laboratory examination in all of the branches, including specialties. The laboratory for operative surgery in the naval school is easily the best we have seen. The chemical laboratories in each of the three government services are both commodious and complete. The Roentgen departments are well appointed, and there are abundant microscopes, dark rooms for the use of ophthalmoscopes, etc.

The clinical advantages offered in the government hospitals could not be better or more varied. The full capacity of the several government hospitals is about 5,000 patients, certainly sufficient to offer every facility for clinical examination.

The greatest advantages which Washington offers over other places is that an assistant or substitute for any one of the regular examiners could be furnished on short notice, as there are specialists in all departments, members of the respective corps, detailed in the schools and laboratories and free from the demands of private practice. The board consists of fifteen members. The constitution has been amended

to provide for two additional representatives from the Federation of State Medical Boards as soon as vacancies occur in 1918. Then six members will represent the government services, and three will represent the Federation of the State Medical Boards. The remaining six members will be chosen at large, with due reference to geographical distribution, but not necessarily representing any association.

The personnel of the National Examining Board is as follows: Admiral W. Clarence Braisted, president; Gen. W. C. Gorgas; Gen. Rupert Blue; Col. L. A. LaGarde, U. S. A., treasurer; Dr. W. S. Rucker, U. S. P. H. S.; Dr. E. R. Stitt, U. S. N.; Dr. Isidore Dyer, New Orleans; Dr. Victor C. Vaughan, Ann Arbor; Dr. W. L. Rodman, secretary, Philadelphia; Dr. Herbert Harlan; Dr. E. Wyllys Andrews; Dr. Henry Sewell; Dr. Austin Flint, Jr., and Dr. Horace D. Arnold.

Following Dr. Rodman, the relationship of the National Board to the Federal government medical services was discussed by Dr. W. C. Gorgas, surgeon general, U. S. Army; Dr. W. C. Braisted, surgeon general U. S. Navy, and Dr. John W. Kerr, representing Surgeon General Blue of the U. S. Public Health Service.

Dr. W. C. Gorgas: The formation of this National Board has been of great interest to the medical department of the army as a possible medium of increasing our reserve corps. . . . A bill at present before Congress contemplated bringing the regular army, ultimately, up to nearly a million men. The proper manning of this number of men on a war footing would require about 10,000 medical men. . . . I think the National Board of Medical Examiners will be a great measure for recruiting our reserve corps. . . . So far as the army is concerned it will certainly be supported.

Dr. W. C. Braisted: The idea of a central examining board whose certificate should be of such high character that its acceptance by every state, territory and possession of the United States would be assured has been in the minds of many of the profession for the past twenty years. We medical officers of the navy feel that physicians should be entitled to practice within our own country at any time and place. As medical officers of the navy our duties are constantly shifting us from place to place, bringing us under ever changing conditions at the most unexpected times. In times of emergency, in war or disaster, in situations in which no other professional help is available, we feel that we should be protected by some provision of this kind to make our services of full value to the nation. The possession of a certificate of the national medical examining board by an applicant for the Naval Medical Service would undoubtedly be of great value in showing his fitness for the medical corps of the navy, in either the active or the reserve corps.

What has been outlined describes in the main the relationship of the navy to the national medical examining board. The navy has no special relationship with

the contemplated board. In national movements the services are frequently, almost daily, called on to assist and help to establish and organize measures for the nation's welfare and advancement. This movement to establish a national medical examining board is one of these great endeavors for the country's welfare, and it thus becomes our duty, as servants of the people, to attempt to aid by every means in our power your efforts in this direction.

Dr. John W. Kerr, for Surgeon General Rupert Blue: Surgeon General Blue desires to do whatever he may to elevate the requirements and the standing of those engaged in the practice of medicine. He feels that by reason of a movement of this character it would be possible for our diplomas and requirements in this country to be accepted in greater degree by other countries. It is the desire of Surgeon General Blue by every means possible to stimulate interest in the advancement of the public health and encourage and stimulate the medical profession to engage in this work to a greater degree.

The surgeon general's connection with the board must of necessity be one of unofficial character. He believes that eventually it will be practicable by this means for the government to recruit for the services to which I belong and to provide for greater interest in public health work and to favor appointments in time of epidemics without additional examination.

Dr. Herbert Harlon, president of the National Examining Board of Maryland, in speaking of the relationship with state medical licensing boards, said:

Protection of the people is a state police function, and without an amendment to the constitution of the United States cannot be taken over by the national government. Such an amendment is not to be hoped for. State medical examining boards must continue, but as a large number of state boards (forty-one) have the legal authority to recognize, as a sufficient guarantee of fitness, examinations conducted by boards of other states—examinations in regard to the conduct of which, in many instances, little is known and nothing inquired into—there is no legal objection to a change of statute granting a state board authority to recognize the certificate or diploma of a national board as sufficient evidence of medical qualification; but only if, in the good judgment of the state board, the examinations, written, oral or practical, conducted by the national board are of such a character as to justify its acceptance.

Early in December I wrote to the secretaries of sixty-three boards and fifty-three states and territories, asking whether each board had the power to accept the examination of a national board in lieu of their own examination. Forty boards (in thirty-eight states) answered "No," and four "Yes"; two were doubtful and two noncommittal.

In reply to the question whether the board would be willing to license physicians who had passed the national board's examination without requiring them to take their own, seventeen replies were received, eight negative and nine affirmative. Twenty-three states would be willing to ask their legislatures to

amend the laws so as to give them power to do so.

The answers to another question show that the present organization of the board and its plan of continuance is satisfactory to twenty-three and unsatisfactory to six, while thirteen would like some modifications.

To summarize, only a few boards have legal authority at this time to accept the national board, probably eight. Of those having no authority, however, 71 per cent. expressed themselves willing to ask for legislation enabling them to do so.

It is expected that each state board will exact the same fee for recognition of the examination of the national board that they do now for the recognition of the license by another state.

The success of this movement to establish a national board of medical examiners depends on the acceptance of its certificates of proficiency by all, or nearly all, of the various state boards.

Doctor Victor C. Vaughan, in discussing educational standards, said: "It is a matter of great importance what standards are adopted by this examining board after it goes into existence and begins its work. In the first place, we will expect that those who come before the board shall have had a fundamentally broad education; that each applicant shall at least know how to use his own language or the English language correctly. In the second place, it will be expected that for scientific and medical purposes at least, each applicant shall know either German or French or both. So far as the physical sciences are concerned, there can be no question that medicine is nothing more or less than the application of the facts of biology, physics and chemistry to the prevention and cure of disease.

It is the unanimous opinion of the members of this prospective board that at least two years of college work, in addition to the high school course, should be demanded for admission to an examination before this board. To demand less would be to go back. As we have been told, nine states already demand and three states more have notified that they will demand it, and there is scarcely any doubt that within a few years the majority of the states will be demanding it.

Opening the general discussion on this proposition, Dr. C. St. Clair Drake, Secretary and Executive Officer of the Illinois State Board of Health, presented the views of the Illinois board, based on opinions rendered by the Attorney-General of Illinois, and offered a substitute plan for the standardization of examinations for medical licensure such as could be adopted by practically every state without amendment of existing medical practices acts:

"There can be no controversy as to the advantages which would accrue to the members of the medical profession if there could be devised some plan whereby one medical licensure would permit practice in any and all parts of the United States. The continued efforts throughout the years to establish and extend inter-state reciprocity in medical licensure bears evi-

dence of a firm and growing acceptance of the value and justice of such an arrangement.

Every fair-minded person, interested in the uniformity of medical standards or in the removal of the irksome restrictions now imposed upon physicians, must be in sympathy with the aims and purposes of the National Board of Medical Examiners. There can be no question as to the ability of such a board made up of men of the best professional reputation and representing organizations which stand for the highest standards in medicine—to perform the proposed function in the most satisfactory manner.

Legal obstacles, however, such as have always stood in the way of nation-wide licensure by the Federal Government, remain in Illinois, as well as in other states, as barriers to participation in the plan of the National Board.

Under the Illinois law the State Board of Health is charged with certain specific duties relative to examination and licensure of physicians and it has been repeatedly held that duties and authority so imposed cannot be delegated to extra-governmental organizations. Certainly under existing Illinois law, the State Board of Health could not turn over its examining and licensing function to the National Board of Medical Examiners, nor could the State Board of Health accept the certificates of the National Board in lieu of examination as prescribed by law.

Waiving the question of the grave dangers entailed in seeking new legislation or of disturbing the present Medical Practice Act, the passage of which, in its present form, was accomplished with considerable difficulty—it is doubtful whether the power lies with the General Assembly to so amend the present law or to pass a new one which would make such action possible.

The General Assembly has countenanced the acceptance of licenses issued by legally constituted authorities of other states and nations under certain definite conditions; but this is vastly different from the recognition of the action of an organization, however excellent, having no governmental authority whatever.

While the permanency of the National Board of Medical Examiners is not questioned, it is none the less a voluntary organization which may terminate its existence at its pleasure or which may alter its plans and methods without official sanction or legislative enactment.

I do not want this comment to be misconstrued, nor the belief to be entertained that the Illinois State Board of Health is not in hearty accord with the purposes of the National Board, or that there is the slightest lack of confidence in that organization. The view expressed is that which must apply to all extra-governmental agencies contemplating in any way the assumption of governmental function.

In fact, in an opinion recently rendered by the Attorney-General of Illinois, it is definitely stated that any law enacted by the General Assembly providing for the delegation of the examining and licensing power to an extra-governmental organization of

any kind would be construed as class legislation and would consequently be declared null and void.

I am impressed that, so far as Illinois is concerned—and I believe that this applies to other states—the desired ends must be attained through concerted action on the part of the several state examining and licensing bodies, and I do not feel that it is unreasonable to expect that such successful concerted action can be secured.

The following suggestive plan has been given serious consideration by the Illinois State Board of Health in its efforts to determine upon some means which would, in harmony with existing state laws, guarantee practically those benefits and reliefs which the National Board of Medical Examiners proposes to afford.

It would be entirely consistent with the medical practice acts now in force in many of the states to create a general conference or commission of medical examiners, to be made up preferably of the various state examining and licensing boards. This conference or commission could formulate its own rules by which each state board could have equal voice with any other in the control of the organization. These rules would also specify the manner in which medical examinations would be conducted in the several states; the subjects to be covered and the relative weight or importance to be given to each subject included in the examination. The rules would be such as to guarantee, as far as practicable, absolute uniformity in character of questions, arrangements of subjects and detailed methods of examination to be employed by all boards party to the conference or commission.

The rules thus formulated would be presented and adopted as the rules of the individual states, so that in each state they would become the legal and official rules.

One of the important functions of the commission would be the preparation of examination questions for use by the component boards. A sufficient number of physicians—members of the different boards—would be assigned to the preparation of the questions.

The questions so prepared by the commission would be transmitted in sealed packages to the various states in which examinations are to be held and could be formally adopted by the individual boards, the seals not to be broken, however, except in the presence of the assembled candidates for licensure.

In the opinion of the Attorney-General of Illinois, there can be no legal objection to the adoption of the questions in the manner set forth.

The examination in each subject could be held simultaneously in all the different states, allowance being made, if deemed necessary, for the difference in time in the various sections of the country. Absolute certainty that there could be no communication between the various sections of the country as to the nature of the questions, could be guaranteed by a rule which would require all candidates to remain in the examination room until the last papers are completed or the examination period ended. Such periods, extending at least three hours, could be be-

begun simultaneously by local time without chance of leakage in any way. The examination begun on the Atlantic seaboard at 9 a. m. would not be completed by 9 o'clock Pacific time, when the candidate in the most western state would have begun his examination.

It would be thoroughly practicable and legal to permit the presence at each examination of a representative of the Conference resident of another state to note every detail of the examination and to report back to the commission, provided the individual board declares its examination public and not private. While such a representative would be without official authority in the individual state, and would be present merely as any other visitor, his reports to the Conference could receive due consideration in determining the good standing of the board conducting the examination.

Under the Illinois law, and doubtless in other states, the examination papers must be graded by the Board of Examiners of the state in which the examination is given. Even the submission of the papers to any other body, although that body might have official existence, is legally construed as an addition to the test definitely specified in the present law. While it is thus impossible to delegate the grading of the paper, the papers and grades can be open for inspection, at the discretion of the board, and the commission could unofficially review such documents to detect any irregularities or any preferences shown to candidates by the individual states. Such irregularity or undue liberality in grading could be reported to the Conference, and, while this would not be a basis for reviewing or in any way affecting the grades already given the individual, it could form the basis of determining the good standing of the offending board with the Commission, and if need be of terminating the co-operative relationship.

In this way there could be obtained absolutely uniform written examination and relative uniformity in grading the results of such examinations and this would be accomplished under the laws now in force in most of the states.

While it would not be practicable, perhaps, by this Commission to adopt all of the features proposed by the National Board of Medical Examiners, the results could be made generally satisfactory. As I understand it, certain minimum educational standards have already been adopted by the National Board. It is doubtful if these, as they now stand, could be adopted by the Commission under existing state laws; but there is no reason why, with the medical examination absolutely uniform and the rating relatively so, the individual state should not accept those candidates passing the examination and presenting evidence of the preliminary and professional education required by the state.

For example: Suppose the State of New York requires, as a pre-requisite for licensure, high school education, one year of collegiate education and one year of hospital internship; on the other hand, suppose that Illinois requires high school graduation and

one year in college, but does not require internship. Assume that two candidates are licensed in Illinois through the examination given by the Commission. The first of these has served as interne, while the second has not. There is no reason why New York should not accept the one, as meeting the New York requirements and reject the other as failing to meet such requirements.

Incidentally it should be pointed out that, if the various states were empowered to accept the services of the National Board of Medical Examiners, vigorous opposition would be encountered on account of the failure of the Board to accord representation in its membership of the other recognized schools of medical practice. In fact, it is more than likely that if the delegation of the examining function to the National Board of Medical Examiners would not in itself cause a law to be regarded as class legislation, this failure to recognize all schools of practice by that body would do so.

Regardless of our individual opinions on this matter, it cannot be lost sight of that the various sectarian schools have jealously guarded their rights and interests in the various states and would relinquish their present representation in the individual states only upon the assurance of equal representation on the proposed national board, and, the law-making bodies of the various states would, in most instances, look favorably upon this demand for representation, as they have almost invariably done in the past.

In connection with the proposed Commission made up of the state examining bodies, the fact that such commission would not receive examination fees raises the question of financing its work. It would be possible under the present Illinois law for the State Board of Health to pay to the Commission an agreed sum for each set of questions necessary for the examinations. I cite what can be done in Illinois because many of the states operate under laws which, in many details, are quite similar to the Illinois law. As I see it, practically the same results can be obtained by the Commission here briefly outlined as by the National Board of Medical Examiners, with the essential difference that the former could operate in harmony with the laws now extant in Illinois and elsewhere, while the latter, being purely an extra-governmental and voluntary agency, in the opinion of the Attorney-General of Illinois, cannot be utilized lawfully by Illinois and certain other states.

A brief summary of the discussion which followed at the evening session of the Federation of State Medical Boards is herewith presented:

Dr. C. E. Cantrell, Texas: The protection of the people of a state is laid at the door of the Governor. This is true of most, if not all states. The Governor appoints the board. His office is a political one. It is the duty of the board to prevent men from entering the practice of medicine who have not been properly educated and who are not qualified. Where is the difference between the examination that is to be

given by this national board of examiners and its staff and an examination of any first class university or college? It seems to me the great danger lies in the multiplicity of standards.

Dr. Arthur G. Hume, Michigan: Every member of a state board should think as to what he considers his duty. As a representative of the Michigan State Board, my primary duty to the people of the State of Michigan is to so aid in administering medical affairs in the state that all of the people will receive the most effective service from the medical profession in that state. According to the opinion of the Attorney-General of Michigan, we cannot as members of the State Board recognize the certificates of a national board.

Dr. T. J. Crowe, Texas: On such a national board let us have three Federal men, and twelve representatives from the Federation of State Examining Boards of the United States. Let us call it a Federal board, so that we know what we are getting. It seems to me starting with six men picked from the Federal service, and only three men from the state boards, is a mistake. There should be a larger representation from the Federation of State Examining Boards of the United States.

Dr. E. J. McKnight, Conn.: It is a good thing to have a national medical examining board. I have no criticism to make of its personnel. If the Council on Medical Education should report favorably on this national board at the next session of the American Medical Association, I shall vote for it.

Dr. S. L. Jepson, W. Va.: The national board has placed the standard too high. The examinations held by the different public services are much more rigid than those held by the state boards. When this high standard is announced through the medical journals it will lead to a failure of the national board.

Dr. H. W. Abraham, Wis.: The State Board of Wisconsin has the greatest confidence in this movement for a national board. When the matter was published in the *Journal of the American Medical Association*, and the board was named and a résumé of the standards exacted, our board as a unit moved to accept the licenses of this board if in every way they came up to the standard required in Wisconsin.

Dr. James W. Holland, Philadelphia: The argument in favor of a national board from the standpoint of the army and navy and the Public Health Service was not simply to make it an adjuvant to the recruiting departments of the army and navy. It is very likely we are about to enter on a system of preparation for war which will necessarily include a large body of trained medical men, whom by the most varied and searching tests are known to be qualified to take care of our young men before and after they have been on the firing line. They are to be in the reserve corps, and it is not simply those in the standing army, which is relatively small, but in that army which we may be called to summon at any time and which may require thousands of men.

Dr. W. T. Gott, Indiana: The weakest spot in our

system of legislative enactments is the lack of uniformity, but this is the first time to my knowledge that a proposition has been made to give legislative functions to a voluntary board. If that doctrine were applied to other matters in which there is a lack of uniformity, we would have voluntary boards instead of legislative congresses. While such a body composed of distinguished educators would perhaps be better than anything we now have, it is contrary to the spirit of our government.

Dr. H. H. Grant, Kentucky: The object of this national board is to give every ambitious young man the advantage and opportunity to get the approval of the highest tribunal that can be established. It gives those who hold certificates from this board prestige everywhere in the United States.

Dr. Walter L. Pierring, Iowa: There has been criticism with reference to the manner in which this board is constituted; nevertheless its purpose is in keeping with that the Federation of State Medical Boards has been discussing and working for since it was organized. I presume that the real purpose of this board will be to standardize examinations. These standards may be a little too high, but they will, at least, establish a standard for examining licentiates to which all states can approximate. It would appear that this is a pioneer movement to which we should all subscribe.

Dr. Alexander Marcy, Jr., New Jersey: New Jersey is heartily in sympathy with this movement for a national board. We believe it is a step in the right direction. I am glad indeed to give my unqualified approval to this movement, to the personnel of the board, and to what it hopes to do.

Dr. John M. Baldy, Pennsylvania: Who says it is a legal body? What is the reason such is necessary? No one pretends that this national board is a legal body. Their actions are not claimed to be legal, but they are looking to you to make them legal. Pennsylvania is going to make this proposition legal. Pennsylvania has the power; you all have the power.

Dr. Isadore Dyer, New Orleans: The board has submitted its case to representatives of all sections of the United States and to men who stand for all phases of medical education and state medicine. The members of the board in coming before this aggregation of intelligent men do not wish them to misunderstand their motives in presenting this case. The board has been organized for the specific purpose of submitting and putting through a standard of medical education. The plan which they have submitted has been devised by a comparatively small group of men who have acted with their best intelligence.

The discussion tonight has been of the sort which was to be expected. No movement which stands for progress can succeed without reasonable objection. If this body tonight had had no discussion and had unanimously endorsed the board, I believe some of us would have felt the board was not nearly so strong either in its motives or methods as we had hoped it might be. The opposition to it speaks for its strength.

There is no member of the board who does not welcome honest criticism and honest suggestions with a view to improving its motives and its methods. If it is possible to put the board on a legal basis it will be done. It is the intention of the board to solicit the best advice it can get to that end. If it is not possible to place it on a legal status, I believe I speak for the board when I say that it is the intention to go ahead on the standard which it proposes until it wins its way by the right and justice of its function.

TUBERCULOSIS NOTES.

The most important indication in the treatment of tuberculosis, by whatever method, is rest, mental as well as physical.

Every case of tuberculosis must be treated as an individual case. There is no general treatment for all cases.

In 1905 \$5,000,000 was spent in the anti-tuberculosis movement; in 1915, \$22,500,000. In 1880 death rate was 326 per 100,000, in 1913 it was 147.6.

Consumptives should be prohibited by law from marrying. Their children almost invariably become subjects of tuberculosis, and often charges of the state.

The prevention of tuberculosis in children is the treatment of the parents. If parents are healthy and strong, their child will almost surely escape this disease.

The child must be protected in his home if we wish to prevent tuberculosis in adult life.

Diseased teeth are excellent culture tubes. Germs introduced with food, drink and kissing find here an excellent media.

If we were able to prevent tubercular infection in childhood, we would soon see the end of tuberculosis.

A constantly accelerated pulse with elevation of temperature calls for an investigation of the reason. It will often be found in the lungs.

An increase of the whispered voice means tuberculosis present.

Tuberculosis of the larynx can often be prevented by giving your patient the following rules:

1. Always breathe through the nose. If unable, have nose attended to at once.
2. Refrain from abusing the voice by shouting, singing and excessive talking. Slightest hoarseness calls for immediate and complete rest of vocal chords.
3. Cough as little as possible.
4. If subject to colds or sore throats, seek prompt medical attention.
5. Abstain from the use of tobacco and alcohol. Both irritate the larynx.

Pituitrin has been successfully used for the treatment of pulmonary hemorrhage.

6. Slightest trouble in nose or throat calls for immediate investigation and attention.

FREE LECTURES ON TUBERCULOSIS.

Given by the Chicago Tuberculosis Institute at the City Club of Chicago, 315 Plymouth Court.

Lecture 1. Monday, March 6th, 6:30 p. m., "Bacteriology and Pathology of Tuberculosis," J. H. Corper, M. D.

Lecture 2. Monday, March 13th, 6:30 p. m., "Sources and Channels of Tuberculous Infection," G. A. Gekler, M. D.

Lecture 3. Thursday, March 16th, 6:30 p. m., "Prevalence and Distribution of Tuberculosis," Theodore B. Sachs, M. D.

Lecture 4. Thursday, March 23d, 6:30 p. m., "Tuberculous Infection in Childhood," O. W. McMichael, M. D.

Lecture 5. Monday, March 27th, 6:30 p. m., "Contributory Factors in the Development of Tuberculosis: Personal and Public Hygiene," John Ritter, M. D.

Lecture 6. Monday, April 3d, 6:30 p. m., "Contributory Factors in the Development of Tuberculosis: Industrial Hygiene," James A. Britton, M. D.

Lecture 7. Thursday, April 6th, 6:30 p. m., "Schools and Tuberculosis," Sherman C. Kingsley.

Lecture 8. Monday, April 10th, 6:30 p. m., "Present Status of Medical and Specific Treatment of Tuberculosis," Ethan A. Gray, M. D.

Lecture 9. Thursday, April 20th, 6:30 p. m., "Hospital, Sanatorium and Dispensary Control of Tuberculosis," J. W. Coon, M. D.

Lecture 10. Monday, April 24th, 6:30 p. m., "City Program for the Control of Tuberculosis," James Minnick.

Public Health

FOR HEALTHIER BABIES.

COUNTY MEDICAL SOCIETIES AND WOMEN'S ORGANIZATIONS JOIN HANDS FOR AN ILLINOIS "BABY HEALTH CONFERENCE WEEK."

"Baby Week" will be observed throughout the United States March 4 to 11. Illinois will do its part.

"Baby Health Conference Week"—a sort of follow-up campaign of a practical character—is on the calendar for May 8 to 12.

Originally it was the plan to feature baby health conferences in the program of baby week, but considering the facts that March is our month of bad weather, quite impassable roads and the season of greatest prevalence of communicable diseases, it quite properly was decided to delay the state-wide conferences to a time when conditions will be more favorable to the purpose. Accordingly, the week May 8-12 has been designated "Baby Health Conference Week." Another argument in support of this change of program is that it offers something in the way of a definite follow-up program for "Baby Week" and thus will tend to sustain interest in the baby saving movement to that season of the year when active work is most needed and usually begins.

To this end the State Board of Health has addressed communications to all women's organizations and to all the county medical societies of the state asking their cooperation in promoting and carrying out a baby health conference in every county during the week of May 8-12. The response to this suggestion has been so general and enthusiastic as to assure the success of the movement.

Details of the plans for "Baby Health Conference Week" will be made known on application to the State Board of Health.

IMPORTANT RULINGS AFFECTING BIRTH AND DEATH REGISTRATION LAW.

In order to best serve the people, reducing inconvenience to a minimum, and thus facilitate the early successful operation of the new birth and death registration law, the following rulings have been announced by the State Board of Health:

BURIAL PERMITS MAY BE OBTAINED FROM ANY REGISTRAR UNDER CERTAIN CONDITIONS: Any local registrar may act as sub-registrar for any other local registrar and in his capacity as such sub-registrar he may issue a permit for the burial or removal of the body of any person who has died in a district other than his own; Provided, that he shall first have obtained consent and authority for each such issuance from the registrar of the district in which the person died or the body was found, and, Provided further, that he shall agree to immediately forward the death certificate upon which the permit was issued to the registrar of the district in which the death occurred or the body was found.

BURIAL PERMIT ACCEPTABLE FOR DISPOSAL OF BODY IN ANY DISTRICT: A burial permit regularly issued by a legally appointed local registrar, sub-registrar, or deputy registrar of Illinois, shall be accepted as authority for burial or other lawful disposition of the remains of the deceased person thereon named, in any lawfully conducted cemetery or burial ground in the state of Illinois; Provided, that the local ordinances of a city, incorporated town or village within whose corporate limits the cemetery or burial ground is wholly or in part included, are not in conflict with this rule.

NEW QUARANTINE RULES FOR EPIDEMIC MENINGITIS AND MUMPS.

NOW IN FORCE THROUGHOUT ILLINOIS.
EPIDEMIC MENINGITIS.

Reports: Immediate reports to local health authorities required.

Placarding: Premises occupied by patient must be placarded with red warning card of prescribed size and design.

Quarantine: Close quarantine required; no person may leave premises during quarantine; visitors strictly prohibited. Quarantine will be raised only after case

terminates and two negative cultures at three day intervals from patient and one negative culture from attendant and all other inmates of premises are obtained and premises are disinfected. Quarantine in epidemic meningitis cannot be terminated with safety without resort to laboratory examination of cultures. It can only be terminated by the local health authorities.

Exclusions from Schools and Public Gatherings: Patient must be excluded for at least one week after quarantine has been raised. Persons removed from infected premises and those exposed to the disease must be excluded until cultures obtained from nose and throat have been determined by laboratory examination to be negative.

Removals: No inmate of infected premises may be removed therefrom or from place to place without permission of local health authorities.

Deliveries of Foodstuffs: Milk and other foodstuffs shall be delivered to premises without contract between delivery agent and inmates of premises, and no container, mail or other article shall be taken away from the infected premises during quarantine.

Sale of Milk and Foodstuffs on Infected Premises Prohibited: No milk or milk products, groceries, vegetables or other foodstuffs shall be sold or removed for sale or distribution from any premises on which epidemic meningitis exists until quarantine of the premises has been terminated.

Disinfection: After the death or recovery of the patient and after laboratory examinations have determined that none of the inmates of the premises are "carriers," the premises must be thoroughly disinfected under the direction of the local health authorities.

Burials: The body shall be prepared as in other communicable diseases and the funeral shall be private. Flowers sent to infected premises must be destroyed after removal of body.

MUMPS.

Reports: Immediate reports to local health authorities required.

Placarding: The posting of the usual warning card is not required.

Quarantine: Patient should be isolated from all other members of household for period of 21 days. Visitors must be excluded from premises, but adult inmates of premises may go about their usual business.

Exclusions from Schools and Public Gatherings: Children of family who have had mumps and who hold physician's certificates to that effect may be permitted to attend school. Children of the family who have not had mumps must be excluded from school, Sunday school, theaters, picture shows and all other places of public gatherings for 21 days following date of last exposure.

Removals: Patient shall not be removed from infected premises without permission of local health authorities.

Disinfection: Upon termination of the case, the

sick room and contents must be disinfected. Room must be thoroughly aired, floor and woodwork scrubbed, bed clothing and all articles coming in contact with the patient must be boiled or immersed in a standard disinfecting solution.

Burials: Body must be wrapped in sheet soaked in a standard disinfectant and then placed in an airtight coffin.

STATE BOARD ISSUES NEW BOOK ON BABY CARE.

COPY TO BE SENT TO EVERY MOTHER ON RECEIPT
OF BIRTH REPORT.

HANDSOME ENGRAVED CERTIFICATE OF BIRTH
ALSO TO BE GIVEN TO EACH MOTHER AFTER
BIRTH OF CHILD IS RECORDED.

A new book for mothers on the care of babies has just been issued by the Illinois State Board of Health. This booklet of thirty pages, under the title of "Our Babies, How to Keep Them Well and Happy," is most attractive in appearance and from cover to cover is teeming with that sort of advice and information which every mother, awake to the best interests of her child, seeks. Practically everything pertaining to the health and well being of the baby is discussed in a most interesting way and without the employment of technical terms.

Advance copy of this little booklet was placed in the hands of Governor Dunne for review and both he and Mrs. Dunne were so impressed with the value of the information therein set forth as to urge its placing in the hands of every Illinois mother. The Governor's letter approving the publication is as follows:

STATE OF ILLINOIS.
Executive Department,
Springfield.

February 24, 1916.

Dear Sir:—I have read with much care and very great interest the advance copy of the new booklet to be published by the State Board of Health, entitled "Our Babies; How to Keep Them Well and Happy," and it is my opinion that in placing this safe and sane information in the hands of the mothers of Illinois that you are rendering a service to the commonwealth and especially to our baby citizens, which must be of immeasurable benefit. Mrs. Dunne, who has mothered thirteen babies of her own, has also read it with much

interest and joins me in the hope that a way may be found by which a copy of this valuable publication may be placed in the hands of every Illinois mother.

Yours very sincerely,

(Signed) E. F. DUNNE,
Governor.

Dr. C. St. Clair Drake,
Secretary, State Board of Health,
Springfield, Illinois.

Under the new birth and death registration law the State Board of Health now receives and records every reported birth and it is the purpose of the Board on receipt of such reports to forward to each mother a copy of this new booklet together with a handsomely engraved certificate of birth, without charge. The booklet will be a source of great help and much comfort to the mother; the certificate of birth will be a legal document of inestimable value to the child, especially as he grows into manhood. Parents desiring to possess the certified copy of their child's birth record must first see that the birth of the child is properly recorded. Under no circumstances can a certified copy of a birth record be furnished until after the birth has been reported and recorded.

One of the striking characteristics of the new booklet is the number of catchy epigrams on babies. As these give some insight into the subject discussed in the booklet, a number of the most striking are herewith reproduced:

THE BABY IN EPIGRAM.

The first essential of living well is to be born well.

The beginning of life-saving should be at the beginning of life. Prevention of disease for later life, doesn't mean much to the baby that has been permitted to die in infancy.

A well baby is a happy baby. A baby is never cross or fretful by its own choice.

There is no heritage of greater value than the sight of human eyes.

The baby is the only animal that can actually be benefited by an authentic pedigree. Pups and colts will never know whether they are registered or not.

The home is the center of sentiment. It should mean protection and health and happiness. There is not much joy in insanitary sentiment and dangerous protecting roofs.

Babies do not want silks and satins; but they want sunlight and sanitation.

A baby wants warmth, cleanliness and comfort. He isn't interested in mahogany or in polished brass.

A baby is a serious proposition. He isn't a doll to be dressed and undressed, bedecked and beribboned for the amusement of an overgrown girl.

We make our own clothes to suit ourselves. Why not make the baby's clothes to suit the baby? He cares nothing for style.

Many parents lament their inability to give their children "bigger opportunities." There is no occasion for such lamentation in regard to the out-door life—the "biggest opportunity" for the child to acquire health.

Among the few things unforgivable is the unwillingness of the mother to nurse her child.

The nervousness of the baby is often the reflection of the lack of poise on the part of the mother.

Living by rule is difficult. Living by luck is hazardous.

The dial of the scales is the Dunn or Bradstreet of the baby's career.

It is not so important to know how much fat a milk contains, as it is to know how much manure and filth it contains.

In dealing with milk, remember the advice of Mr. Punch: "In case of doubt, don't."

A little care for a little while every day will often prevent serious catastrophe.

Carelessness for a moment may cause regrets for years.

Every artificially-fed baby lives under a distinct disadvantage. Every care must be exercised to reduce this disadvantage to a minimum. Give the baby a chance.

The best food for the baby is mother's milk. The next best food is the milk of some other animal designed for the sustenance of the young.

Many babies have died because things have been taken for granted.

In dealing with a baby, make haste slowly. There is less danger of under-feeding than over-feeding.

The children who are the most unhappy are those who are most humored by over-indulgent parents.

There should be fair play between parents and baby. The baby should be accorded his rights generously and sanely. He should not be permitted to play the tyrant with those about him.

The subject matter of this booklet will first appear in the March issue of *Illinois Health News*, the official monthly publication of the State Board of Health, and will be distributed during Baby Week, March 4-11. Later a more elaborate issue in pamphlet form will be prepared and at least 100,000 copies will be distributed during "Baby Health Conference Week" in May.

Copies can be secured now on request addressed to Dr. C. St. Clair Drake, Secretary, Illinois State Board of Health, Springfield, Ill.

SCHICK TEST OUTFITS NOW BEING DISTRIBUTED BY ILLINOIS STATE BOARD OF HEALTH.

AVAILABLE UNDER CIRCUMSTANCES HEREIN STATED.

The State Board of Health began the distribution of Schick test outfits to physicians and hospitals throughout the State of Illinois on February 20.

The early demand for these outfits exceeded expectations to such an extent as to cause the Board to issue a letter of information calling attention to the fact that the packages now available are designed for ten individual tests and that unless the applicant has as many as eight tests to make within a period of twelve to twenty-four hours after mixing the toxin and diluent it would not be practicable from a post point of view to furnish same.

In explanation of the time limit for making these tests, it was pointed out that after mixing the toxin and diluent the mixture will not be serviceable for tests beyond a period of twenty-four hours and then only when kept at a temperature of 45 degrees Fahrenheit or less.

Special attention also was directed to the fact that the Schick test package must be kept at a temperature of 45 degrees or less at all times and that under such treatment the life of the toxin, *prior* to mixture with the diluent, would be at least four months.

The State Board of Health is highly gratified to note the very general demand for the Schick test outfits and it will be prepared to supply all orders falling within the requirements set forth in the letter of information.

The attention of those interested in obtaining further information regarding the technique and interpretation of the Schick test, is directed to Dr. Abraham Zingher's article, illustrated with colored plates, appearing in a recent issue of the *American Journal of Children's Diseases*.

Happiness is a habit—cultivate it.

Have nothing in your house which you do not either know to be useful or believe to be beautiful.

Office holders seldom possess retiring disposition.

STATE BOARD EXAMINATIONS.

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the *Results of Physicians' Examination Held in Chicago*, October 13-15, 1915. The total number examined was 107, of whom 86 passed and 21 failed:

PASSED.

College	Year of Graduation	Total No. Passed
Barnes Medical College.....	(1898)	1
Bennett	(1913, 1), (1914, 2), (1914, 1), (1915, 2), (1915, 16)	22
Chicago College of Medicine & Surgery... ..	(1909, 1), (1913, 1), (1914, 4), (1914, 3), (1915, 3), (1915, 10)	20
Chicago Hospital College of Medicine. (1915)		2
Chicago Medical College.....	(1884)	1
Cornell University.....	(1915)	1
Eclectic Medical Institute.....	(1894)	1
Hahnemann, Chicago... (1914, 1), (1915, 1)		2
Harvard Medical School.....	(1899)	1
Jenner	(1914, 1), (1915, 7)	8
Marquette University... (1911, 1), (1914, 1)		2
Missouri Medical College.....	(1894)	1
National University of Greece.....	(1908, 1), (1912, 1)	2


National University of St. Louis....	(1914)	1
Northwestern.....	(1914, 1), (1915, 3)	4
P. & S., St. Louis.....	(1908)	1
Rush	(1896, 1), (1915, 4)	5
Starling Medical College.....	(1884)	1
St. Louis University.....	(1914)	1
Tufts College Medical School.....	(1913)	1
University of Illinois.....	(1915)	6
University of Nebraska Col. of Med..	(1915)	1
University of Virginia.....	(1915)	1

86

FAILED.


Bennett	(1914, 2), (1915, 4)	6
Chicago College of Medicine & Surgery....	(1914, 2), (1915, 4)	6
Chicago Hospital Col. of Medicine... (1915)		3
College of Medicine & Surgery... (1910)		1
Illinois Medical College.....	(1910)	1
Meharry Medical College.....	(1908)	1
National University, St. Louis.....	(1914)	1
University of Iowa, Medical Department "R"	(1890)	1
University of Louisville.....	(1913)	1

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KERCHOO! KERCHIEF


BY ARTHUR M. CORWIN, A.M., M.D.



**The germ that sneaks in a sudden sneeze,
 And lurks in a cougher's wheezes.
 Is a burglar bold who works through "a cold,"
 And steals at his ease as he pleases.**



**But there's relief from this common thief,-
 Capture the crook is the caper!
 Just muffle the sneeze and catch the disease
 In 'kerchief of cotton or paper.**



Chicago Department of Health Cut No 321

Auto Sparks and Kicks

A NEW CARBON REMOVER

A mixture of kerosene and oil of camphor makes a good carbon remover. A pint of kerosene to 2 oz. of oil of camphor is the quantity ordinarily used, and this is sufficient for most motors. The liquid is poured in through the carbureter intake while the motor is running. To prevent stalling, the motor should be speeded up somewhat, and if there is still a tendency to stall, the rate at which the liquid is poured in should be reduced.—John Hawkins, Hawkins' Garage, Trenton, N. J., *Motor World*.

MAKING CUPS ACCESSIBLE

Grease cups are often placed on the torque tube, and it is usually the case that all four are difficult to reach. A simple method of making these more accessible is to cut a small door in the tonneau floor and place all four grease cups under it. Each cup connects with the point which it lubricates by a length of tubing.

The two cups which grease the ends of the yoke arm move with the car body, and therefore must be supported from the floor, but the two running to the two ends of the torque tube move with the latter, and therefore must be supported from it. Therefore, the former cups may be held in place by a small iron bracket bolted to the floor of the tonneau, and the latter must be carried on a bracket which is clamped around the front of the torque tube.

The covering to the opening in the floor may be supported by screwing projecting iron strips on the under side of the floor on two opposite edges. The cups should be placed somewhat below the floor level so that the cover may fit into place.—G. B. Cortelyou, New York.

EXPERIMENTS DISCOURAGED

Relative to the selection of a lubricant it should be borne in mind that no one grade of oil, no matter how pure, is suitable for all types of motors, because the methods employed for feeding the oil to the working parts vary considerably. It is for these reasons that the manufacturer or the agent of the car specifies a certain grade and thickness as best adapted to meet the mechanical and thermal conditions of the motor.

It is for similar reasons that the use of a light or medium oil is recommended for winter and a heavier lubricant for summer.

WATER FOR BATTERIES.

The increased use of storage batteries due to electric starters and electric lighting makes it more imperative that the owner give that attention to the battery which it merits. One respect in which this is particularly true is that of adding the necessary amount of distilled water to keep the battery plates covered. Many owners think it necessary that acid should be added to the electrolyte as frequently as water. This is a serious error. With the new battery it is not necessary to add acid for the first six months of its use, but distilled water should be added regularly. In hot summer weather the battery should be inspected at least every two weeks and in colder weather once a month.

The best policy is to add distilled water, which can be secured at drug stores in gallon bottles at a nominal price. Those who do not care to take the trouble of buying it at the drug store can secure it by melting artificial ice. To those in the country who may not have either of these sources available, fresh rain-water will be entirely satisfactory. Do not use the rain-water collected during the first few minutes of the shower, when it contains more or less deposits from the roof of the building from which it is collected.—*Motor Age*.

"In determining the correct size of the tire and the proper inflation," says an expert with the Firestone Tire and Rubber Company, "it is important to know the weight of the car and its distribution on the front and rear wheels. Run front half of car on platform scales and make note of the weight. Then place only the rear half of car on scales, recording this weight also. The weight carried by each tire will be one-half of either of the respective amounts."

To avoid accidents from back-firing, when cranking, place the thumb against the index finger and take the handle between the four fingers and the palm of the hand. The hand thus opens readily should a back-kick occur. Always crank up—never down.

Regular Meeting. February 23, 1916.

1. The Schick Test.....George H. Weaver
Discussion.....H. N. Bundeson
2. The Origin and Development of Congenital Cleft
Palate, The Treatment Essential to Establish
Normality. (Lantern slides).....
.....Truman W. Brophy

CHICAGO OPHTHALMOLOGICAL SOCIETY
MEETING OF NOV. 15, 1915.—Continued.

DISCUSSION OF GLAUCOMA.

Dr. Frank Allport contended that glaucoma in a large proportion of cases was an expression of a general condition and he always insisted upon an absolutely thorough general examination of the patient. He believed a great many cases of glaucoma can be relieved by a proper diagnosis of a general condition and the relief of such conditions by appropriate treatment, together with the use of miotics. He hardly believed that Dr. Roy would advocate invariably the performance of any kind of operation upon the eye immediately he made up his mind that a glaucomatous condition existed.

With regard to the operation described by Dr. Roy, he had not performed it himself, but he intended to do so when an opportunity presented. Ophthalmologists were very much in the dark as to what they wanted to do in glaucoma. The present operations were not by any means satisfactory and ophthalmic surgeons had passed from iridectomy to various other procedures, such as the Lagrange operation, the Elliott operation, etc. The Elliott operation swept over the world like a cyclone a short time ago and everybody was doing it. The returns were now coming in from the Elliott operation. Late infections were reported and a great many were abandoning the operation. If one could get results from such a simple operation as the one that has been described, why not perform it? The Whorlen operation appealed to him exceedingly and he was going to give it a thorough trial.

Dr. Francis Lane thought the success of the operation was due to the fact that the iris being spongy tissue, it afforded ample opportunity for a cystoid cicatrix to form and thereby take care of drainage beneath the conjunctiva.

Dr. George F. Fiske had never seen a case of glaucoma treated by miotics alone that recovered. He had seen patients on whom two or three or four iridectomies had been performed keep vision of from 20/20 to 20/30 for from twenty-five to thirty-three years. Personally if he had glaucoma he would be operated on at once; would have his general health attended to and miotics used the rest of his life.

Dr. Roy, in closing, said he had been misunderstood with reference to the use of miotics. When he found miotics were doing no good and the symptoms were getting worse it was a question of operation, and he used miotics as an adjuvant after operation. He had not used atropin after operation. He had never had an iris slip back into the anterior chamber in any case he had operated on.

SKIN GRAFTING; THE USE OF VASELINE IN
CUTTING AND THE OPEN AIR
TREATMENT.

Dr. Walter R. Parker, Detroit, Michigan, stated that after the surface had been prepared, the skin and knife were smeared with a thin coating of sterile vaseline. By this means the tendency of the skin to move with the knife was practically all eliminated, and one of the greatest difficulties in the successful cutting of grafts thereby obviated. As all his experience had been in correcting defects in and about

the eyelids the grafts had been small, varying in size from twelve to twenty-five mm. to twenty-five to fifty mm. He could not see, however, why the same advantage would not obtain in grafts of any size. So far as he had been able to judge, the use of vaseline had not interfered with the healing process in a single case, nor had he seen a complication he could attribute to its use. His experience included twelve operations.

DISCUSSION.

Dr. Oscar Dodd had used vaseline on the knife to start the incision, so that it would not stick to the skin. He had always cut the grafts dry and applied them dry, but Dr. Parker's method of applying vaseline on the knife allowed it to slide through and make the incision better than he had been able to do.

Dr. Harold Gifford had never tried the use of vaseline, but was going to do so after what Dr. Parker had said. An opening dressing was good but not essential. If one put vaselin and aristol on wet cotton and after covering the latter with gutta-percha to prevent drying, put on a firm dressing, the graft would never peel off. He had always been able to stop the bleeding by pressing the flap firmly down on the raw surface.

EXTRACT OF CATARACT LEAVING AN UN-
DETACHED CONJUNCTIVAL FLAP OR
BRIDGE ON THE TEMPORAL SIDE;
ITS ADVANTAGES.

Dr. Frank C. Todd, Minneapolis, Minnesota, said his experience was limited to seventy-one operations in which this incision was used. The advantages over the use of a suture are obvious. The greatest advantage may be summed up in the word safety. It often happens after or during a cataract extraction and before the eye is closed that the lid winking over the eyeball catches on the lower lip of the wound, thus turning it over and outwards, sometimes permitting of the escape of vitreous, or at least interfering with the proper coaptation of the two edges of the wound, thereby endangering infection of the wound and vitreous, when the edge of the lid, so difficult to sterilize, rubs against the inner surface. This cannot take place when the conjunctival flap exists for the lid rides safely over the attached conjunctival flap and the cornea. There is less danger of escape of vitreous, and he has had a number of cases in which no vitreous was lost or where a little vitreous presented, in which he is confident a serious loss of vitreous would have occurred were it not for the presence of the conjunctival flap, and it proves a safeguard of especial value in unruly patients.

As to visual results the number of cases is not sufficient to draw any definite conclusions but both in the University Hospital cases and in private practice he finds that the average of visual results were better in the cases where the flap was undetached than was the case where the conjunctiva was detached. His experience leads him to believe that an undetached conjunctival flap is a procedure of preference in cataract extraction.

DISCUSSION.

Dr. William A. Fisher thought that if the members of the society would take a vote, it would be to the effect that

loss of vitreous was one of the most serious complications one could have during an operation and if the flap described by Dr. Todd would keep the vitreous back he had contributed a very valuable addition to the cataract technic. Loss of vitreous after the lens was born was of little consequence in any method of extraction if the lids were kept away from the eyeball, but loss of vitreous preceding the delivery of the lens was a serious matter to most operators. He thought that methods of removing the lens when vitreous had preceded it should be emphasized and much attention should be given to the pressure that might be given to the eyeball through the lids.

He was pleased to note that Dr. Todd did not remove the dressings for four days. If all has gone well after a cataract operation for four days it is safe to say that there would not be any objection to waiting four or five days more and allow the wound to heal more strongly. Dr. Todd is to be congratulated upon his uniformly good results, but he believed Todd could extract many of his lenses in capsule, providing he would try the pressure before rupturing the capsule. If there was prolapse of the iris he did not think it should be cut off until fourteen days after the operation on account of the danger of opening the corneal wound and inviting infection. When the prolapse is cut off fixation forceps should not be used, because a sudden movement of the eye caused by the pain might open up the corneal wound and invite infection. If the eye is not dressed for nine days infection will be rare.

PAUL GUILFORD, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held December 20, 1915, with the president, Dr. Richard J. Tivnen, in the Chair.

A PECULIAR CORNEAL CONDITION.

Dr. J. A. Pratt, Aurora, Ill., reported the case of Mr. H., who came to him October 12 last with the following history: In April of this year, while feeding cattle, he was struck in the eye with a piece of cornstalk. The eye became red, sensitive to light, with scalding tears, but no other discharge. These acute symptoms lasted for two weeks and then subsided. At different times, until August 24, the eye would smart and tear. On August 24 patient consulted a physician, who gives the following history: "Mr. H. came to have his eyes fitted with glasses. The vision in each eye was 20/80, and with correction 20/20. In illuminating the pupil a well defined spot about the size of the diameter of a pin could be seen in the center of the pupil of the right eye. September 25 he returned to me with all the appearances of a well marked ulcer of the cornea, including a slight hypopion and a slight deposit on Descemet's membrane. I noticed that the central part of the ulcer or deposit in the cornea was not broken down as much as one would expect it to be, judging from appearances; inflammatory symptoms and purulent secretion present. I cauterized the central portion of the surface with carbolic acid and immediately observed that the surface was only partly broken down, since the size of the deposit was about the size of a me-

dium pupil, while the depression was about the size of a pinhead.

"Under six days local and general treatment the ulceration and hypopion disappeared. As the inflammatory symptoms continued, I used atropin, one per cent, with no result, but with the crystal of atropin the pupil dilated completely and was easily maintained. The spot in the cornea remained, and in two weeks changed its shape from an oblong with long diameter perpendicular to an oval with the long diameter in a horizontal direction, without any change in the inflammatory symptoms."

(To be continued.)

DE KALB COUNTY

The DeKalb County Medical Society met in DeKalb, January 28, 1916. The meeting was called to order by the president, Dr. L. E. Barton.

Dr. Charles S. Bacon of Chicago, gave an instructive talk on "The Newer Methods of Managing Excessive Vomiting of Pregnancy." On motion of Dr. Rankin, a vote of thanks was given Dr. Bacon by the members present.

Communications were read by the secretary, and Dr. J. B. Hagey was elected Advisor to the Medico-Legal Committee for DeKalb County. The society then adjourned to meet on the last Friday in April at Sycamore.

J. B. HAGEY,
Secretary.

LAKE COUNTY

Regular meeting of the Lake County Medical Society was held in the Commercial Club rooms at Waukegan, Thursday, February 10, 1916, 8 o'clock.

This was our tuberculosis meeting and that quite an interest was taken was proven by the large attendance. Twenty members were present.

The Committee on Fee Bill reported and on motion the same committee was retained and instructed to present a revised schedule for the Lake Shore towns at our next meeting. Carried.

Motion to adopt resolutions as passed by the Madison County Medical Society relative to reciprocity for the members, carried unanimously.

On reading communication from the Legislative committee of Illinois State Medical Society relative to need of more medical representation in our State Legislature, our members expressed themselves as heartily in favor of the movement, and a motion that the chair appoint a committee of three to interview and assist in selecting a medical man from our district to represent us in the State Legislature, carried unanimously. The committee selected were Drs. Knight and Gourley of Waukegan, Billmeyer of Zion City. We then proceeded with the following very interesting program.

PROGRAM

"The Auto-inoculation Treatment of Pulmonary Tuberculosis."

Dr. H. H. Bay, member of staff Cook Co. Institutions.

"Symptomatology, Diagnosis and Operative Treatment of Tubercular Kidney."

Dr. W. S. Bellows.

"Surgical Interference in Glandular Tuberculosis."

Dr. F. L. Gourley.

"General Tuberculosis, Statistics and Symptomatology."

Dr. A. E. Budde.

Vote of thanks was extended Dr. Bay for excellent paper, after which we were served a Dutch lunch, buffet style. Adjourned to meet early in March.

C. S. AMBROSE, Secretary.

MORGAN COUNTY

The Morgan County Medical Society met February 10, subject, "Post Operative Adhesions." Dr. J. W. Hairgrove, leader. Being called away from the city the topic was discussed by various physicians from a standpoint of adhesions in different parts of the body, Dr. Adams bringing out the points and technique which would cause the least adhesions in nasal operations. Dr. Black and Dr. Stacy and Dr. Hardesty discussed the paper giving quite extensive case references.

Dr. Anny E. Petersen was elected to membership.

The following resolution was adopted:

Resolved, That the Morgan County Medical Society does hereby heartily endorse the popular movement known as "Baby week," and that we believe the results of such work will be of great benefit to our community. Therefore, we urge all citizens to take an active interest in the same.

The Society also approved of the following resolution which was previously passed on by the committee appointed by the president, Dr. Carl E. Black, Dr. E. A. Foley, Dr. T. G. McLin. The resolutions were passed on account of the death of Dr. Luther J. Harvey of Griggsville, Ill. Dr. Harvey was born at Warner, N. H., 1851, and emigrated to Illinois when a young man. He graduated from the medical department of Washington University in 1875 and at once began the practice of medicine at Griggsville, Illinois. He was licensed to practice medicine in Illinois in 1877. Consequently he has been in active practice in Griggsville for a little more than forty years. Dr. Harvey was also president of our Society.

WHEREAS, It has pleased Providence to remove from our midst Dr. Luther J. Harvey, and,

WHEREAS, He was for many years a devoted member of the Morgan County Medical Society, and

WHEREAS, He was always one of the active leaders in his profession, having organized the Pike County Medical Society and having been for a number of years councilor of the Illinois State Medical Society from this district, and

WHEREAS, He was always on the side of progress and just dealings in his profession as in his daily life, and

WHEREAS, He was constant in his efforts to forward all movements which would contribute to the amelioration of suffering and distress, and

WHEREAS, He was always a leader in all movements for the best interests of his community and his profession, and

WHEREAS, He always preserved in the community the highest possible character and sense of devoted citizenship. Therefore, Be It

Resolved by the Morgan County Medical Society that we express to the family of the late Dr. Luther J. Harvey our deep sense of loss in the passing of this useful and noble man and our great admiration for his many rare talents and that we take this means of expressing our sympathy in this hour of their bereavement, and, Be It Further

Resolved, That a copy of these resolutions be sent to the family of the deceased, and a copy be spread on the minutes of the Morgan County Medical Society, as an inspiration to others, and a copy be sent to the daily papers.

Committee:

T. O. HARDESTY, President.

CARL E. BLACK,

E. A. FOLEY,

T. G. McLIN.

The Society adjourned to meet at our next regular meeting, March 9, subject, "The Relation of Tonsils to General Diseases." Dr. A. L. Adams.

THOS. G. McLIN, Secretary.

ROCK ISLAND COUNTY

The regular meeting of the Rock Island County Medical Society was held February 8, 1916, at the New Harper Hotel, Rock Island. Dinner was served at seven o'clock with Dr. William Fuller of Chicago and Hon. H. A. Weld of Rock Island as guests of honor. After the routine business the following program was rendered:

"The Medical Expert from a Lawyer's Standpoint," by H. A. Weld.

"The Etiology and Present Status of the Treatment of Traumatic Bone Lesions," by William Fuller, M. D.

Both papers proved of unusual interest and called forth discussion from many members of the society. Dr. Fuller's paper was illustrated with lantern slides of original x-ray pictures.

Thirty-two members and four visitors attended this meeting.

A. E. WILLIAMS,

Secretary.

ST. CLAIR COUNTY.

The monthly meeting of the St. Clair County Medical Society was held in the Y. W. C. A. Hall, East St. Louis, February 10, 1916.

President B. H. Portuondo presided. A large number of members were present, also many principals and

teachers of the various schools of the city.

Dr. Frank R. Frey of St. Louis, Mo., read a paper on "Anxiety Neurosis." This paper dealt with the newer phases of nervous disorders, and was very instructive and highly appreciated by all present.

"Hygiene as Used in Public Schools," was the subject of the paper read by Dr. James Stewart of St. Louis. This paper of vital importance was attentively listened to by all present and undoubtedly will be of great benefit in helping to improve the hygienic conditions of our public institutions.

A. E. HANSING,
Secretary-Treasurer.

UNION COUNTY

The Union County Medical Society was called to order by President G. W. Morrow at 8 p. m., January 26, 1916, at the Stinson Memorial library, Anna, Ill.

Dr. A. J. Lyerla, Jonesboro, was elected to membership of the Legislative Committee of the state society.

Dr. E. V. Hale was elected delegate to the next state society meeting and Dr. L. D. Keith was named the alternate.

Dr. S. B. Norris read a paper on "Eclampsia" and reported some cases. The subject was discussed by every member present.

On motion the date of the meeting of the Society was changed from the last Wednesday to the last Thursday of each month.

Dr. P. S. Waters of the Anna State hospital, offered to give a stereopticon lecture at an early date.

Dr. W. E. Lingle of Cobden will read a paper on "La Grippe" at the next meeting which will be held on February 24 at the same place.

E. V. HALE, Secretary.

VERMILION COUNTY

The Vermilion County Medical Society met in the City Council Chamber, Danville, February 14, 1916, at 8:00 p. m., and was called to order by President Dale.

A very interesting program had been arranged, and 30 members were present. Communication in regard to Baby Week Campaign, and "Better Baby Contest" was read, and on motion was placed on the table.

Communication from "The Madison County Doctor" relative to general reciprocity was read. On motion the resolutions were adopted and Secretary was instructed to write the secretary of the State Board of Health, and the legislators from this district, stating that we are heartily in favor of these resolutions.

The program of the evening consisted of the "Illinois Liability Compensation Act," by Dr. S. C. Glidden. Discussion by Dr. E. B. Coolley. "Management of Extra-Uterine Pregnancy," Dr. A. M. Miller. Dis-

cussion opened by Dr. J. M. Guy. Both papers were enthusiastically discussed.

O. H. CRIST,
Secretary.

WINNEBAGO COUNTY

The Winnebago County Medical Society assembled for its regular monthly meeting at Nelson hotel, Rockford, February 8, 1916. Members present 23; visitors, 2. Dr. D. B. Penniman in the chair. The reading of minutes was suspended. Dr. A. A. Willander of Rockford was admitted as a member.

Dr. R. W. Holmes of Rush Medical College, Chicago, addressed the society on the subject, "Curtailed Indications for Cesarean Section." Dr. Holmes treated his theme very exhaustively and it should prove of practical value to those present. He discussed the indications under two headings: "The Definite" and "The Conditional." The speaker, throughout his talk, cautioned against needless section. Discussion followed, after which the society gave Dr. Holmes a rising vote of thanks.

C. M. RANSEEN,
Secretary.

Personals

Dr. Victor A. McClanahan of Viola, had one eye removed recently.

Dr. G. E. Dienst, Aurora, recently fell from a car and sustained a compound fracture.

Dr. Fred W. Moeller of Chicago reached Boston February 11, after service in the war zone.

Dr. LeRoy Chapin of Canton, was the victim of drug fiends who raided his office for "dope."

Dr. William Jayne, Springfield, fell on a slippery sidewalk, January 19, injuring his left hip.

Dr. Clarence M. Cheadle, Rockford, reached New York, February 11, after several months' service in Serbia.

Dr. J. C. Gunn of Belleville, has been appointed ocular surgeon to the Southern Railway Company for his district.

Dr. A. L. Mann of Elgin, was proposed for representative in the legislature by members of the Elgin Physicians' Club.

Dr. Beatrice C. Opre, Victoria, while visiting patients January 8, was seriously injured by her horse slipping and falling on her.

Dr. George P. Gill, Rockford, who has been serving with the British Expeditionary forces in France, arrived in Boston, February 11.

Dr. James I. Hale, Anna, has recovered after an operation for strangulated hernia performed at St. Mary's Infirmary, Cairo, January 13.

Drs. Roth and Horstman of Murphysboro, were acquitted in a suit for malpractice before the Jackson county circuit court, for \$10,000.

Dr. William M. Thompson was slightly injured and his automobile was demolished in a collision with an automobile truck, February 14.

Dr. H. S. Lester of Streator, addressed the parent-teachers meeting at the Washington school, February 19, on medical school examinations.

Lieut.-Col. Jacob Frank, surgeon-general of Illinois, was elected president of the Army and Navy Club of Chicago at its annual meeting, February 7.

Dr. Jacob W. Bolotin, Chicago, is one of thirty school tuberculosis physicians recently appointed on competitive examination, in spite of his blindness.

Dr. Charles F. Yerger, attending physician at the Juvenile Detention Home, suffered concussion of the brain from an accidental blow on the head January 25.

Dr. William L. Kreider, Prairie City, one of the oldest practitioners of McDonough County, is critically ill as the result of a cerebral hemorrhage, February 11.

The "School of Evolution" of Elgin, offers lectures by Drs. W. S. Brown and Sallie Y. Howell and Attorney R. Waite Joslyn in a campaign for better babies.

Dr. Leander D. Keith, Anna, fell from a buggy recently, sustaining a fracture of the left arm above the elbow. He is said to be making satisfactory progress toward recovery.

Drs. Anna Dwyer and Effa B. Davis have been made members of a committee to draft a constitution and by-laws for a commission recently formed to study the wayward girl problem.

Dr. Fred. G. Hall of Galesburg, fractured a metacarpal bone while cranking his auto to call on another fracture case. Which reminds one that life is just one thing after another.

Dr. George T. Palmer of Springfield, delivered three lectures before the Chicago School of Philanthropy and Civics, last month, on "Social and Medical Social Work in Smaller Cities."

Dr. Charles B. Johnson, Champaign, delivered an address before the Rock Island County Historical Society at the Rock Island Y. M. C. A., February 4, on "What Illinois Did in the Civil War."

Dr. Frank S. Churchill, Chicago, has been elected vice-president of the Infant Welfare Society and Drs. W. A. Evans, Caroline Hedger and Clifford G. Grulee were elected members of the board.

Holdup men frisked Dr. A. H. Leviton of Chicago of his overcoat and valuables, but allowed him to keep his obstetrical bag. "Hurry along now, old man," one of the robbers said. "We wish the mother luck."

Dr. Gilbert Langdon Bailey, Oak Park, has purchased the estate known as the Higgenbotham farm about two miles from Lexington, Ky., on the Newton pike. Dr. Bailey expects to take possession of his farm March 1.

Dr. J. M. Postle of Dekalb, brought suit against twenty-five members of Elgin lodge of Eagles for medical services. He furnished his services to members' families on a per annum basis, but did not agree to furnish medicine, as alleged.

Dr. Mary L. Rosenstiel of Rockford, was driving her roadster four miles from town when it caught fire and was completely destroyed. The cause was thought to be either backfiring or from the anti-freezing mixture in the radiator. Car was insured.

Dr. C. Franklin Leavitt of Chicago, is said to have been remembered in a bequest to the amount of \$100,000 by a Mrs. Paul of San Francisco, for "absent treatments." The bequest is being contested by the heirs, and it may be "absent too." This listens like the bequest of Mrs. McVicker to Dr. L. C. H. E. Zeigler, a few years ago.

Dr. Caroline Hedger has been making surveys of cities having large foreign populations for the National Americanization committee of New York. The object of the Society is to promote the rapid assimilation of the many foreign elements that now, through lack of educational and other opportunities, remain foreign in feelings and sentiments.

Dr. and Mrs. Harry M. Richter, Dr. Jacob R. Buchbinder, Dr. Joseph Loewe and two nurses making up the first hospital unit to go from Chicago to Germany, left for the war front, February 14. Dr. Richter will relieve Dr. John Fischer of the German hospital, New York, who has been in charge of a 500-bed hospital at Oppeln, near the Russian frontier.

Dr. Thomas Lewis Gilmer has been appointed dean of Northwestern University Dental School by the trustees, in succession to the late Dr. Greene Vardiman Black. Dr. Gilmer is a graduate of Washington University Dental department and of Chaddock School of Medicine, Quincy, Ill. He has held the chair of oral surgery in Northwestern University Dental School more than twenty years.

News Notes

—The American Medical Golfing Association will list as charter members all fellows of the American Medical Association who enroll before April 1, next. This association was organized last year and held its first tournament at San Francisco, June 21, 1915. The officers are: President, Wendell C. Phillips, New York; vice-president, James Eaves, San Francisco; secretary-treasurer, Will Walter, 122 S. Michigan boulevard, Chicago.

—Peter Zimney, a fleshing machine operator in a Chicago tannery, died from anthrax, February 19, being infected from a hide through a scratch. This is said to be the only death from anthrax on record in Chicago.

—John J. Hatton, who posed as a physician was sent to the bridewell February 18, on a charge of violating the Harrison law.

—Epidemics of scarlet fever caused closing of schools last month in Alton (Western Military Academy) and in Hinsdale. A reported epidemic at Great Lakes training school was denied by the superintendent. There were only seven cases. There were also a number of cases in the Home for the Friendless in Peoria.

—Whooping cough numbered thirty-one cases in the Odd Fellows Orphan Home in Lincoln.

—Eight cases of smallpox developed in the Cook County Hospital last month. General vaccination and restriction of visiting stopped what threatened to be a serious epidemic.

—The Illinois State Hospitals Medical Association met at the Jacksonville State Hospital, February 24 and 25.

—Dr. George L. Apfelbach, director of the Occupational Disease Clinic of the Illinois Department of Factory Inspection, delivered an illustrated lecture on "Occupational Hygiene," in the auditorium of the Chicago Turngemeinde, January 19.

—Eight cases of smallpox have recently occurred at the Cook County Hospital. Five wards have been put under quarantine and wholesale vaccination has been practiced.

—The finance committee of the board of commissioners of Cook County has promised that plans for building an emergency hospital for South Chicago to cost \$100,000 will be considered by the board this year. Preliminary plans for the building will soon be submitted.

—Physicians of Rock Island at a called meeting appointed a committee to draft resolutions protesting against the proposed removal of R. W. Sharp as superintendent of the city water works, and commending the efficient management of the water department.

—Thirty-five more nurses from the Mercy Hospital, Chicago, sailed from New York, February 2 for England to minister to the wounded soldiers of the allies. Miss Mabel Adamson is in charge of the party.

—A Chicago branch of the American National committee for the foundation of special American hospitals in Paris for wounds of the face and jaw has been appointed. About \$100,000 will be required for this purpose, of which \$30,000 has so far been secured and the American Red Cross agrees to donate \$2,000 for every \$18,000 raised by subscription. The committee consists of Drs. Truman W. Brophy, chairman, and L. L. Davis and George West.

—The Robert Koch Society for the study of tuberculosis met at the Morrison hotel, Clark and Madison streets, on Thursday, February 17, at noon. Subject for discussion, "Tuberculosis of the Kidney." Dr. D. P. Phemister, pathology; Dr. Daniel N. Eisendrath, symptomatology; Dr. Herman L. Kretschmer, diagnosis and treatment.

—Dr. Wolff Freudenthal, president of the German Medical Society of New York, addressed the German Medical Society of Chicago by in-

vation on Thursday, February 17, on: "The direct galvanization and faradization of the bronchi and their topical medicinal treatment in bronchial asthma."

—Dr. A. C. Ragsdale, formerly of Metropolis, Illinois, has recently bought the practice of Dr. J. P. Nelson of Gorham, Illinois, and removed to that place. Dr. Nelson has removed to Dow, Oklahoma. We wish them both success in their new fields of practice.

Marriages

JAMES A. CAMPBELL, M. D., Elgin, Ill., to Miss Ruby Dale, at Los Angeles, February 3.

WILLIAM THOMAS COLLINS, M. D., Freeport, Ill., to Miss Gertrude Hollister of Lake Linden, Mich., December 25.

LEO MATTHEW CZAJA, M. D., to Miss Julie Belohavek, both of Chicago, February 15.

RAYMOND JOHN NEFF, M. D., Oak Park, Ill., to Miss Nina Beggs of Chicago, in Crown Point, Ind., January 18.

ERWIN PAUL ZEISLER, M. D., Chicago, to Miss Ruth Spiro of South Bend, Ind., at Chicago, February 14.

SAMUEL M. MORWITZ, M. D., to Miss Marguerite Lewitan, both of Chicago, at Buffalo, N. Y., January 18.

JOSEPH H. MCGOVERN, M. D., Lenzburg, to Miss Daisy Hedges of Lynville, Ind., January 17.

Obituary

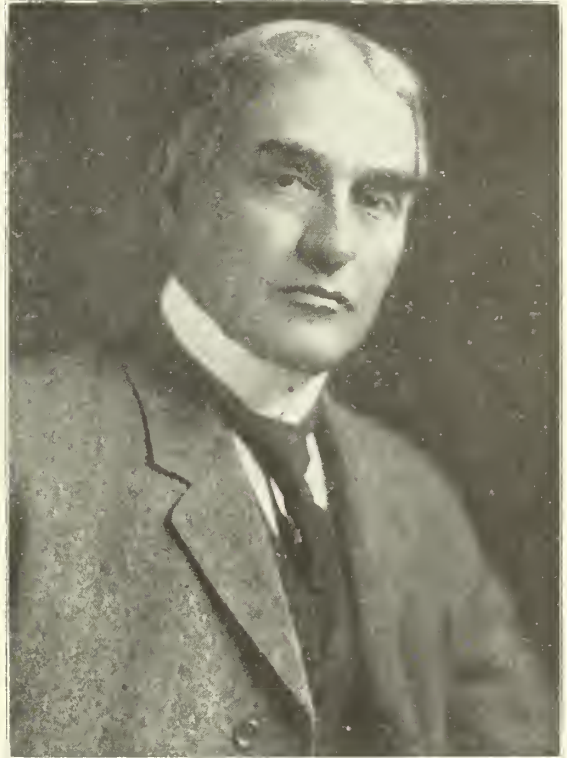
Henry Baird Favill, M. D., one of the best known men in the state, both professionally and in many civic activities, died of pneumonia in Springfield, Mass., February 20. Dr. Favill was born in Madison, Wis., August 14, 1860. Was graduated from the University of Wisconsin in 1880 and from Rush Medical College in 1883. Served as interne in Cook County Hospital. Began practice in Madison with his father.

In 1893 he removed to Chicago where he rapidly built up a practice which placed him in the forefront of the medical profession. This alone would crown the ambition of most physicians of great ability. Dr. Favill was intensely interested in social conditions and early became one of the leaders in the various movements to increase the efficiency of the city council. As president of the Municipal Voters League his advice

to the voters on the records of candidates for office came to have far greater weight than the pronouncements of party organs.

Lessing Rosenthal, who succeeded Dr. Favill as president in 1910, said of him: "His powerful frame housed a powerful mind, whose intelligent force constantly was exerted in the service of the community. Good government, clean politics, municipal improvement and sanitary progress have lost one of their ablest champions."

As director of the City Club from 1905 and



HENRY BAIRD FAVILL, M. D.

for two terms he was a leader in the city's progressive life. Owner of a herd of Holstein cattle he became interested in dairying and was elected president of the National Holstein-Friesian club and was a member of the National Dairy Council. He was a trustee of Chicago Commons; a member of the Commercial Club's committee on education and president of the Chicago Tuberculosis Institute till three years ago. He was a lieutenant in the medical reserve corps of the army.

Tracing his ancestry to a chief of the Ottawa Indians, he was proud of his Indian blood, fond

of outdoor life and never addicted to wearing an overcoat.

Discussing "hyphenated" Americans, he was wont to say that he was one of the few real Americans in Chicago.

Dr. Favill was professor of medicine in the Chicago Polyclinic; professor of therapeutics and later professor of clinical medicine in Rush Medical College. From 1910 to his death he was chairman of the Council on Health and Public Instruction of the American Medical Association. He was president of the Chicago Medical Society, in 1907-1910.

Deaths

EDWARD H. WEBSTER, M. D. Northwestern University Medical School, Chicago, 1877; of Evanston, died.

AUGUSTUS H. MEATH, M. D. Rush Medical College, 1888; aged 56; died at his home in Chicago, February 16, from pneumonia.

JAMES J. PIPER, M. D. Missouri Medical College, St. Louis, 1877; aged 80; died at his home in Chicago, January 25, from pneumonia.

BENJAMIN F. WAYMAN (license, Illinois, 1878), aged 63; died at his home in Walnut Hill, Ill., January 5, from organic heart disease.

SAMUEL S. CANBY, M. D. Missouri Medical College, St. Louis, 1878; aged 67; died at his home in Calhoun, Ill., January 17, from pneumonia.

WILSON BROWN, M. D. Missouri Medical College, St. Louis, 1878; aged 71; of Alto Pass, Ill.; died January 16, at the Hale Sanatorium, Anna, Ill., from diabetes.

DAVID W. SCOTT, M. D. Eclectic Medical Institute, Cincinnati, 1871; aged 83; for many years a practitioner of Freeport, Ill.; died in Zion City, Ill., January 16.

WILLIAM W. BELL, M. D. Jefferson Medical College, 1858; aged 77; a veteran of the Civil War; died at his home in Chicago, November 27, from arteriosclerosis.

ADRIAN L. MOODY, M. D. Northwestern University Medical School, Chicago, 1882; aged 61; died at his home in Chicago, February 3, after an invalidism of twenty-five years from paraplegia.

REUBEN WADDELL GRAHAM, M. D. College of Physicians and Surgeons, Chicago, 1915; aged 23; an interne in the Illinois Steel Company's Hospital, South Chicago, Ill.; died January 31, from diphtheria.

FRANKLIN HARVEY HANEY, M. D. Chicago College of Medicine and Surgery, 1909; aged 38; for thirteen

years a pharmacist and practitioner of Illinois; died at his home in Walnut, Ill., January 11, from endocarditis.

JAMES BROWN, M. D. Ashton, Ill.; Rush Medical College, 1862; aged 84; surgeon of the Sixty-Sixth Illinois Volunteer Infantry throughout the Civil War; a practitioner of Ashton since 1868; died at his home, January 23.

GEORGE P. RIDER, M. D., Wilmette, Ill.; Albany (N. Y.) Medical College, 1888; aged 51; who abandoned practice after a short time for mining interests; was shot in Denver, February 9, and died two days later from pneumonia.

JABEZ DEAN HAMMOND, M. D., Chicago; Rush Medical College, 1885; aged 55; a Fellow of the American Medical Association, since 1893 house physician at the Congress Hotel, Chicago; died at his home, February 15, from uremia.

GEORGE S. WHEELER, M. D., Waukegan, Ill.; Rush Medical College, 1850; aged 87; who practiced for a few years in Chicago and then moved to Waukegan where he kept a book shop for half a century; died at his home, February 20.

DANIEL M. CAMERER, M. D. Rush Medical College, 1849; at the time of his death the oldest living graduate of that institution; aged 91; said to have been the oldest practitioner of Illinois; died at his home in Chrisman, Ill., January 29.

JAMES BUMSTEAD, M. D. Dundee, Ill.; Northwestern University Medical School, Chicago, 1880; aged 67; a practitioner of Dundee since his graduation and one of the most beloved practitioners of Kane County; died at his home, February 15, from pneumonia.

THOMAS BENTON SWARTZ, M. D. Northwestern University Medical School, 1888; aged 60; a Fellow of the American Medical Association; was stricken with cerebral hemorrhage, January 28, while making a professional call, and died at his home in Chicago, February 1.

CHARLES C. GRIZZELL, M. D. Missouri Medical College, St. Louis, 1889; aged 56; formerly a member of the Illinois State Medical Society and first vice-president of the Southern Illinois Medical Association; of Murphysboro, Ill.; a specialist on diseases of the eye, ear, nose and throat; died at his home near Murphysboro, January 17.

JAMES LARUE WADSWORTH, M. D. Northwestern University Medical School, Chicago, 1863; aged 77; a Fellow of the American Medical Association; formerly a member of the Illinois State Board of Charities; surgeon to the Vandalia Consolidated Coal Company, Collinsville, and formerly mayor of that city; died in his office in Collinsville, January 26.

JOHN DEAL, M. D. Riverton; University of Nashville, Medical Department, 1878; aged 69 years; died at his home, February 3, from pneumonia. Dr. Deaf

was born in Pennsylvania in 1847. In 1868 he entered Lombard University at Galesburg, Ill. He taught school in Morrisville and later held the chair of Latin and mathematics in Central Tennessee College at Nashville. A year after graduation in medicine he settled in Riverton. Dr. Deal was a Republican in politics and served as mayor of Riverton. He is survived by his wife; two sons, Drs. Don Deal and John W. Deal of Springfield, and three brothers, Rev. Francis Deal of Los Angeles, George Deal of Taylorville and David Deal of Morrisonville.

NEW AND NON-OFFICIAL REMEDIES.

During January the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

E. R. Squibb and Sons: Antistreptococcus Serum, Rheumaticus.

Lyster Brothers: Lysters Prepared Casein Diabetic Flour.

NEW AND NON-OFFICIAL REMEDIES

Since publication of New and Non-official Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-official Remedies":

Calcium Phenolsulphonate, P. W. R.—A non-proprietary brand of calcium phenolsulphonate admitted to New and Non-official Remedies. Powers-Weightman-Rosengarten Co., Philadelphia, Pa.

Iron Lactate, Merck.—A non-proprietary brand of ferrous lactate admitted to New and Non-official Remedies. Merck and Company, New York.

Sodium Phosphate, Monobasic, Merck.—A non-proprietary brand of sodium acid phosphate admitted to New and Non-official Remedies. Merck & Co., New York.

Phloridzin, Merck.—A non-proprietary brand of phloridzin admitted to New and Non-official Remedies. Merck & Co., New York.

Sulphanilic Acid, Merck.—A non-proprietary brand of sulphanilic acid admitted to New and Non-official Remedies. Merck & Co., New York.

Ergotin, Merck.—A non-proprietary brand of extract of ergot, purified, admitted to New and Non-official Remedies. Merck & Co., New York.

Antithyroidin-Moebius Tablets, $\frac{3}{4}$ gr.—Each tablet contains antithyroidin-moebius $\frac{1}{4}$ gr. Merck & Co., New York.

Equinine Tablets, 2 grs.—Each tablet contains equinine 2 grains. Merck & Co., New York.

Equinine Tablets, 5 grs.—Each tablet contains equinine 5 grains. Merck & Co., New York.

Ferratin Tablets, $7\frac{1}{2}$ grs.—Each tablet contains ferratin $7\frac{1}{2}$ grains. Merck & Co., New York.

Stypticin Hypodermic Tablets, $\frac{3}{4}$ gr.—Each tablet contains stypticin $\frac{3}{4}$ gr. Merck & Co., New York.

Stypticin Sugar-Coated Tablets, $\frac{3}{4}$ gr.—Each tablet

contains stypticin $\frac{3}{4}$ grain. Merck & Co., New York.

Stypticin Dental Tablets, $\frac{3}{4}$ gr.—Each tablet contains stypticin $\frac{3}{4}$ grain. Merck & Co., New York. (*Jour. A. M. A.*, January 1, 1916, p. 31.)

Dionin Tablets, $\frac{1}{4}$ gr.—Each tablet contains dionin $\frac{1}{4}$ grain. Merck & Co., New York.

Dionin Tablets, 1 gr.—Each tablet contains dionin 1 grain. Merck & Co., New York.

Theophyllin Sodium Acetate Tablets, 0.15 gm.—Each tablet contains theophyllin sodium acetate 0.15 gm. Merck & Co., New York.

Triphenin Tablets, 5 gr.—Each tablet contains triphenin 5 grains. Merck & Co., New York.

Tubes Tropicocaine Hydrochloride, Sterilized, 1 gr.—Each tube contains tropicocaine hydrochloride 1 grain. Merck & Co., New York.

Veronal-Sodium Tablets, 5 grs.—Each tablet contains veronal-sodium 5 grains. Merck & Co., New York.

Iodipin Tablets, 3 min.—Each tablet contains iodipin 3 minims. Merck & Co., New York.

Apiol—Merck.—A non-proprietary brand complying with the standards for apiol. Merck & Co., New York.

Creosote Carbonate—Merck.—A non-proprietary brand complying with the standards for creosote carbonate. Merck & Co., New York.

Phenolphthalein—Merck.—A non-proprietary brand complying with the standards for phenolphthalein. Merck & Co., New York.

Quinine Tannate—Merck.—A non-proprietary brand complying with the standards for quinine tannate. Merck & Co., New York.

Sodium Nucleinate—Merck.—A non-proprietary brand complying with the standards for sodium nucleate. Merck & Co., New York. (*Jour. A. M. A.*, January 8, 1916, p. 117.)

Swan's Typhoid Bacterin (No. 44) (Prophylactic).—Marketed in packages (hospital) of thirty-six vials and in packages (board of health) of seventy-two vials. Swan-Myers Co., Indianapolis, Ind. (*Jour. A. M. A.*, Jan. 15, 1916, p. 191.)

Radio-Rem, Outfit No. 5.—An apparatus designed for the production of radioactive drinking water by the action of radium sulphate contained in terra cotta plates. It consists of two plates contained in 250 c.c. bottles; when the bottles are filled with water the two plates impart about 3.6 microcurie (10,000 Mache units) to 500 c.c. water daily. For action, uses and dosage refer to the article on radium in New and Non-official Remedies. Schieffelin & Co., New York. (*Jour. A. M. A.*, Jan. 15, 1916, p. 191.)

Diphtheria Toxin Standardized (Schick Test).—is intended to determine those persons who have not in their blood an amount of diphtheria antitoxin sufficient to render them immune to diphtheria. The test is of special value for use in institutions and among groups of persons exposed to diphtheria, in order that it may be determined which individuals should be given an immunizing dose of diphtheria antitoxin. It is also of value in the diagnosis of other conditions simulating diphtheric infections.

Diphtheria, Toxin Standardized (Schick Test.—Marketed in sealed capillary tubes each containing a solution of one-fiftieth of a minimal lethal dose for guinea pigs of diphtheria toxin. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, Jan. 15, 1916, p. 191.)

Dimazon. — Diacetylaminoazotoluene. An orange-colored powder, insoluble in water, but soluble in alcohol, chloroform, oils, fats and petrolatum. It does not stain the hands or cloth. It is said to be useful to promote the growth of epithelium in the treatment of burns, wounds, chronic ulcers, etc. Dimazon is marketed as follows:

Dimazon Oil.—2 per cent.

Dimazon Ointment.—2 per cent.

Dimazon Powder.—5 per cent. Heilkraft Medical Co., Boston, Mass. (*Jour. A. M. A.*, Jan. 22, 1916, p. 275.)

Ichthalbin Tablets, 5 grs.—Each tablet contains ichthalbin 5 grains. Merck & Co., New York.

Triferrin Tablets, 5 grs.—Each tablet contains triferrin 5 grains. Merck & Co., New York.

Bethanaphthol Benzoate—Roche.—A non-proprietary brand complying with the standards for betanaphthol benzoate. Hoffmann-LaRoche Chemical Works, New York.

Betain Hydrochloride—Roche.—A non-proprietary brand complying with the standards for betain hydrochloride. Hoffmann-LaRoche Chemical Works, New York. (*Jour. A. M. A.*, Jan. 22, 1916, p. 275.)

Ergotinine Citrate—Roche.—A non-proprietary brand complying with the standards for ergotinine citrate. Hoffmann-LaRoche Chemical Works, New York.

Homatropine Hydrochloride—Roche.—A non-proprietary brand complying with the standards for homatropine hydrochloride. Hoffmann-LaRoche Chemical Works, New York.

Seiden Peptone—Roche (Silk Peptone).—A non-proprietary brand complying with the standards for silk peptone. Hoffmann-LaRoche Chemical Works, New York.

Theobromine and Sodium Acetate—Roche.—A non-proprietary brand complying with the standards for theobromine sodium acetate. Hoffmann-LaRoche Chemical Works, New York (*Jour. A. M. A.*, Jan. 29, 1916, p. 355).

Book Notices

FORTY-SEVENTH ANNUAL REPORT OF THE SECRETARY OF STATE ON THE REGISTRATION OF BIRTHS AND DEATHS, MARRIAGES AND DIVORCES IN MICHIGAN FOR THE YEAR 1913. Coleman C. Vaughan, Secretary of State. By Authority. Lansing, Mich., Wynkoop Hallenbeck Crawford Co., State Printers, 1915.

CLINICAL STUDIES IN THE RELATIONSHIP OF INSANITY TO CRIME, by Paul E. Bowers, M. S., M. D.; formerly A. A. Surgeon United States Public Health Service; formerly Junior Assistant Physician Govern-

ment Hospital for the Insane, Washington, D. C. Physician in charge Indiana Hospital for Insane Criminals; physician in charge Indiana State Prison Hospital; President of American Prison Physicians' Association; member of the Indiana Academy of Science; member of the American Association Clinical Criminology; First Lieutenant Medical Reserve Corps U. S. A.; Fellow American Medical Association. Price, \$1.50. The Alexander Publishing Company, Michigan City, Indiana.

NEWER ASPECTS OF BLOOD EXAMINATION. Abderhalden's Sera-Diagnosis and Complement Fixation Test.

Three pamphlets by Dr. R. W. Webster, of the Chicago Laboratories. The booklets discuss these subjects from the laboratory standpoint and for free distribution.

A MANUAL OF HYGIENE AND SANITATION. By Seneca Egbert, M. D., Professor of Hygiene and Dean of the Medico-Chirurgical College, Philadelphia. New (6th) edition, thoroughly revised. 12mo, 525 pages, with 141 figures and 5 plates. Cloth, \$2.25, net. Lea & Febiger, Philadelphia and New York, 1916.

Six editions of a volume intended for a special class of workers, is evidence of the value of the book and of its popularity.

Sanitation is the basis of preventive medicine. The methods of sanitation are changing as completely as in any other field of medicine, hence the necessity of the last word in sanitation and hygiene.

A new chapter has been added to this edition upon "Industrial Hygiene and Occupational Diseases." While the book is primarily of interest and value to health officers, it will also be found especially valuable to the practitioner of medicine, as we today must be sanitarian as well as practitioner. We consider the book an authoritative work, covering a large field briefly, yet clearly.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. By Arthur R. Edwards, M. D., Professor of the Principles and Practice of Medicine and Clinical Medicine and Dean of the Northwestern University Medical School, Chicago. New (third) edition, thoroughly revised. Octavo, 1022 pages, with 80 engravings and 23 full-page plates in colors and monochrome. Cloth, \$6.00, net. Lea & Febiger, Philadelphia and New York, 1916.

This book is the product of an experienced physician, an eminent teacher, a thorough student, and an unceasing worker. It was written for a text-book of the practice of medicine. To cover the entire field of medicine in one volume, the work must be very carefully systematized, which, in this instance, has been done very cleverly.

Written primarily as a text for students, it is not overloaded with theory, but gives those theories which seem to be important today. Etiology, pathology, and diagnosis are carefully delineated. Treatment also receives generous attention, and is designed to be practical. The book throughout seems to lean toward the practical, making it especially valuable to the practitioner.

The book stands out prominently as one of the good works of its class, and we predict a continuation of its popularity.

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EVERY-DAY FACTORS AFFECTING HEALTH AND LONGEVITY.*

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CHICAGO.

No man lives or dies unto himself; all productive life is based on mutuality. Strength is the outcome of co-operation for mutual aid. If many sticks are firmly bound into one bundle the fagot cannot be broken; while if each stick is left separate its continuity is easily severed.

The progress and stability of our commonwealth depends entirely upon the health of the inhabitants; this again depends upon the home environments in which the children are reared. Our methods of supervising the health of the children of today will determine their future physical, mental and moral status.

The history of the world bears clear witness to the fact that real progress and enduring prosperity existed just in proportion as noble ideals and high standards of conduct were fostered in home life.

The most helpless thing in the world is the new-born infant. Figuratively speaking, it is blind, deaf and defenseless; there is within its tiny form the germ of all its physical beauty, moral powers, and intellectual greatness; yet if this child is deprived of intelligent care, the precious seeds may never grow and the bright promise for the future may never be fulfilled.

Insanitary surroundings, errors of dress, diet, fatigue either from premature or over-work, bad examples, insufficient opportunities for the exercise of latent powers and this child so full of possibilities for good may have them warped, checked or destroyed; with the result that, instead of being a blessing to the world, the child may only too easily become a burden. It is safe to state that not many children attain maturity in

full possession of their birthright of mental, moral and physical health.

The influence of home standards, the surroundings, moral and physical, among which a child passes the first 12 years of its life are those which formulate its future, for this is the period when character is in the formative stage.

In our present-day slogan, "Disease Prevention," we attempt to establish the kingdom of right and healthful living; accordingly we teach people that they should build their houses for the free admission of sunlight, that under proper supervision it is well to sleep in the open air; that dust and flies are prolific carriers of infection.

That what we eat, and how we eat, play a considerable part in producing human disability; that assimilation and elimination concern vitally every function and organ of the body; that an intelligent supervision of these factors is of prime importance in disease prevention.

For the purpose of study, we may conveniently divide the subject into two classes—(1) a personal and (2) a public equation. The first relates to the individual and the family, dealing with such subjects as food cleanliness, bathing, sleep, rest, body warmth, etc.; the second, pertaining to the municipality, dealing with such subjects as air, ventilation, housing, heating, water supplies, food supplies, street and alley cleaning, sewage and refuse removal.

Personal hygiene as a factor in disease causation has been long known and emphasized by the profession. It has also been appreciated that it is the most difficult thing in the world to practice continuously and consistently.

Food is of great importance to the wellbeing of the race at all ages. As a causative factor in disease production, we recognize two forms: One due to underfeeding, met with exclusively in the young and manifesting itself in the clinical picture seen so frequently and known as malnutrition. The other form is met with in people past

*Read before Illinois State Medical Society, 1915; Section on Public Health and Hygiene.

middle life and due to over-eating and under-exercising.

The American adult today is eating two or three times as much food as is necessary to sustain the body at the highest point of efficiency. Older adults should eat less and adapt their diet to the changing conditions of life. People of sedentary habits or occupations indulge too freely in nitrogenous food. Proteid diet is the principal source of autointoxication and is responsible for many of the organic diseases met with, especially in people past middle life.

This commercial age is characterized by the sedentary life to an extraordinary degree. This is always abnormal. In sedentary life the maintenance of a high degree of physiologic resistance becomes difficult; if the resistance of the community in general is lowered, then the public health is correspondingly unfavorably affected.

There are suggestive symptoms of wholesale reaction against the evils of sedentary life. Public parks are being liberally provided; public and private gymnasiums are rapidly coming into being. Free public playgrounds now exist in many of our cities; vacations are more than ever the fashion; out-door sports and games are everywhere receiving increasing attention; also public baths and other devices for the promotion of personal hygiene are more and more coming into being.

Recreation: For this, home provision must be made. One reason for youthful restlessness is the repressed but natural craving for mirthful amusement. It will assuredly be sought elsewhere if not permitted at home; the thirst is too often quenched under most undesirable conditions. "All work and no play makes Jack a dull boy." Active brains and growing bodies need recreation. Moreover, the growing body needs rest. Sleep and innocent amusements are nature's means to this end. Give the young folks plenty of rest and time for play.

If, for any reason, rest is curtailed and recreation is not allowed, the store of energy is wasted. And sooner or later the child must pay the penalty in loss of bodily vigor.

The human body manufactures its supply of heat from food and exercise. It preserves heat by clothing. The colder the external air, the greater the loss of heat, especially if the body be ill fed or poorly clothed. Consequently, among

the poorly nourished and insufficiently clad there is a craving for close, stuffy rooms, the result of which are colds, pneumonia, irritable temper and susceptibility to infections.

Personal hygiene can not attain its greatest efficiency without the co-operation of mind and body. There is an intimate relation between the physical and mental forces and they act and react in maintaining a stable and vigorous condition of the human organs. We should, therefore, always apprehend this and kindred principles and take account of them when their recognition is of prime importance in the prevention of disease.

Rest and sympathy are essentially hygienic needs. It is not work per se that tends to undermine vitality and lessen efficiency, but on the contrary it is a senseless and unnecessary worry. There are two kinds of things about which we should not worry; that which we can help and that which we cannot help. Therefore, the cardinal virtues of cheerfulness and contentment are essential factors to bring into vogue in disease prevention.

The modern conception of the municipal hygiene impresses one with its vast possibilities. Man is a gregarious animal, and today is crowding into cities as never before.

The question of how individuals and communities are to secure the best living conditions is today receiving national attention. It is not merely a problem for the poor or any one class, but on the contrary affects directly and vitally the whole community. Bad housing promotes industrial inefficiency, dependence, disability and disease, and tends to debase citizenship. That it increases vice and crime is no longer a question of doubt, the only question being the extent to which it contributes to these various conditions.

In an age characterized by urban life and possessing skyscrapers, tenement houses and other huge bee hives in which such a large percentage of the human family spend a large portion of their lives, buildings require for their proper construction, lighting, heating, air supply, water supply, gas supply and drainage, and the scientific services of architects and engineers.

Air supply is quite as important to mankind as the water or the milk supply. While human beings may survive and seemingly thrive in bad air for long periods of time, to breath impure air

means a process of slow poisoning. People do not usually die suddenly as the result of this slow poisoning; but they constantly "catch cold" or suffer from headaches, indigestion or other quite unnecessary minor miseries of life. Certainly for the best work and the longest life as well as for perfect health, the best atmosphere is none too good. Hence, the sanitary construction of houses and other buildings, the proper heating and ventilation of dwellings, schools, churches and public places demand and in the future will continue to receive a much larger share of our attention.

The creation of tenement house commissions, factory inspection boards, etc., has not solved the housing problem. These agencies have done a great deal to correct unsatisfactory conditions, but there is still much more to be accomplished.

Dr. Stella, after investigating the condition of the Italian population of the City of New York, says, that in one section in 130 apartments he found 1,100 people, exclusive of night lodgers.

He further states that the Italian children of New York City are not as robust as those brought up in the rural districts; that the proportion of the Italian recruits rejected in New York City is greater than in Italy. These defects he attributes to bad housing and lack of proper food.

A careful examination as to the height, weight and nutrition of 72,000 children in a large city, showed that the average boy or girl living with its parents in a house of only two rooms was distinctly smaller and lighter at the same age than was its companion who lived in a house of three rooms. The report says "Boys from 2-room houses were 11.7 lbs. lighter than boys from 4-room houses and 4.7 inches shorter; while girls from 2-room houses average 14 lbs. lighter and 5.3 inches shorter than their fellows from 4-room houses. Overcrowding is always associated with feebleness in some direction, not always obvious at the time but bound to show itself sooner or later.

Dr. Russell of London states that in London very few families survive for more than four generations, that many die out in three generations. That a true Londoner of the fifth or even the fourth generation is rare. A large proportion, probably the majority, lose the fine stock of health they brought with them from the country within two generations.

From the foregoing it is at once apparent that living conditions, such as overcrowding, lack of sufficient air, sunshine, etc., are the great factors in causing the increased mortality in large cities. It demonstrates that space is an important requirement for healthy life. That where several persons are crowded into one bedroom and spend many hours shut up in a small stuffy living room, just as vegetables bleach when trenched, so human beings fade and become ill when deprived of pure air and sunlight.

Diseases are frequently contracted through sleeping in beds that have been occupied by infected persons or by using the same towels and linen. Crowding together of persons of either or both sexes always is insanitary. It facilitates the spread of venereal and other contagious and infectious diseases.

From a municipal sanitary standpoint, buildings should not be higher than the width of the street on which they are situated; the chief objections being that they cut off the sunshine from the streets and from the opposite houses.

Sunshine is the most abundant, cheapest, and most efficient of disinfectants. The absence of this valuable disinfectant is the chief factor in causing the increased mortality in large cities. Therefore the lack of sunshine in homes, factories, etc., is a reproach on the intelligence of the inhabitants and demonstrates ignorance of laws of health and hygiene.

In certain cities of Europe there are laws fixing the maximum density of population. The housing of the working classes in many of our American cities is far from ideal; crowded into tenements, a large number of persons occupying rooms that are badly lighted and poorly ventilated, living under the most favorable environment for lowering vitality, which latter condition renders the individual especially susceptible to every form of disease.

From the above it is apparent that the neglect of the most necessary hygienic precautions may result in dreadful waste of human life.

It is also apparent that best results cannot be brought about by individual effort and that ideal living conditions can only be secured by state supervision.

On the other hand, there are many kinds and conditions of work which physically hurt the growing girl and unfit woman for her task of

child-bearing. It is no less certain that the mother's place is not in the factory or shop but in the home with her children.

Reasoning from cause to effect, demonstrates that the loss of baby life and the great percentage of physical, moral and mental disability begins in the girlhood of the mother. "Forty per cent of married women who have been factory or shop girls come under medical attention for pelvic troubles under thirty years of age. Few escape paying the penalty of overstrain.

"The unmarried as well as the married woman is subject to the physical limitations of her sex and each suffers alike from those incidents of industrial work most detrimental to the female reproductive system, such as overstrain." (Fatigue & Industry.)

Too, many employments which do not require constant standing bring their own special harm to woman workers. To lessen still more the chances of the child, it ordinarily cannot receive the proper care if the mother for economic or other reasons remains at her work in factory, shop or office. Fatigue, overwork and underfeeding of the mother before the child's birth, together with unhealthful food and insanitary environment for the child afterwards, complete the work of destruction.

Dust as a factor in disease production is of special interest. Air is of as much importance for the perpetuation of human life as is water or food. We hear repeatedly of measures being taken to improve the water supply, and of legislative enactments to prevent the adulteration of food. The purification of the air which is so essential for health, is rarely referred to. Most people are careful in regard to water supply and likewise equally particular about the quality and character of the food they eat, yet on the other hand they take into their respiratory passages, without thought or question of its purity, air vitiated with millions of particles of dust.

The effect of dust on the organs of respiration is mechanical, chemical, traumatic and pathogenic. Two or more of these effects are nearly always present and operative at the same time. From a public health standpoint, the pathogenic effect of the inhalation of dust is most important. While pathogenic germs may be found in almost all forms of city dust, they are especially frequent in rooms or hospitals in which patients

with infectious diseases have been careless with the disposition of infectious material. In the home of tuberculous patients, where care is not taken to destroy the sputa, the bacillus is found in large numbers, in the sweepings from floors and in the dust scraped from the walls. A similar condition has been found in cases of diphtheria and other infectious diseases. Tuberculosis heads the list in this direction because of the long duration of the disease and the abundance of sputa containing the infectious material. The sputa is allowed to dry, and forms a part of the dust of the infected room and, as dust, is blown into the air. In this way not only is the room infected, but subsequently the house, with the possibility of eventually contaminating the whole community.

In certain occupations dust has an especially injurious effect upon the respiratory organs, as in cigar and cigarette makers, metal grinders, glass workers, stone cutters, coal miners, etc.

In our attempt to limit the spread of contagion by means of dust, there is one consideration which requires special mention, namely, the relation of domestic cleanliness to public hygiene. Not only should the houses be kept clean and as free as possible of dust, but the usual method of cleaning and dusting houses should be corrected. Sweeping should be so done that as little dust as possible is thrown into the air; the ordinary dusting brush should be banished from the household, for it simply distributes the dust which first vitiates the air and eventually falls again upon the surrounding objects. There should be used instead either damp or oily cloths, a method that may occupy more time, but is more thorough and requires less frequent repetitions.

In cases of illness, every precaution should be taken to avoid contaminating the air with infectious material. Members of the household should be shown how easily infection may be spread and how by ordinary care it may be avoided. The sputum from all patients suffering from a contagious disease should be deposited in vessels containing an antiseptic solution or in cloth that can be promptly destroyed by fire. Under no circumstances should sputa be allowed to become dry in cuspidors or on cloths. If such measures are carefully carried out it will materially assist in stamping out contagious and infectious diseases. If it were generally under-

stood that in instances where several members of a family die of tuberculosis, the result is due more to the inhalation of tuberculous infected dust and not to inheritance, the records of such cases would be of far less frequent occurrence.

In cities where a law prohibiting spitting on the floors is not enforced, a source of danger from dust, equally as conspicuous as street dust, but far more pernicious in its effects, is the dust of public conveyances. The expectorated material soon dries and becomes a part of the dust of the floor and later of the dust of the air and as such is inhaled by passengers. Bacteriologists have repeatedly shown the presence of pathogenic micro-organisms in sweepings of car floors and the possibility of contracting disease from this source especially in winter when the windows are closed. The chances of obtaining diseases from this source are enormously increased when individuals have been debilitated by sickness and when the normal resistance has been lowered.

La grippe, a most contagious disease, is no doubt largely due to exposure in the manner mentioned. What has been said pertains not only to public carriers, but as well to churches, theatres, public halls, etc.

It is ludicrous to see cities spending millions of dollars for drainage, sewage and other sanitary measures and neglecting the hygiene of public carriers which daily transport thousands of passengers.

Most of our large cities have enacted laws prohibiting spitting on the floors of public carriers, public halls and places of amusement. A rigid enforcement of the law will have a marked influence on the future number of reported cases of infectious diseases.

Another fruitful source of contamination of the community with infectious disease is by coughing and sneezing in public. It is surprising that sanitarians have paid so little attention to the grave dangers from sneezing in public or private places without covering the nose and mouth with a handkerchief. A no less dangerous and reprehensible habit is that of coughing without employing similar protections.

In both coughing and sneezing, infectious germs may be thrown into the air, each offender thus creating zones of danger that constantly menace those unfortunate enough to be in the vicinity. This danger is naturally increased in

closed places or conveyances. In some diseased conditions coughing is unavoidable and necessary, as is sneezing and spitting, but such acts can be indulged in without menace to others by placing before and holding close against the face a clean handkerchief which should afterward be quietly and carefully placed in the pocket and not flaunted in the air.

We could soon stop these dangerous habits if every one would take upon himself the duty of joining in a crusade not only against the man who expectorates, but those who sneeze and cough in public places without protecting the face with a handkerchief. By this means alone can we do away with this disgusting practice that menaces public health.

Street cleaning, too, may spread contagion and affect public health chiefly on account of the dust created by city activity.

The cleaning of city streets is necessary for several reasons: First, the preservation of the public health; second, the physical comfort and convenience of the people; third, a regard for cleanliness and good appearance.

From a sanitary viewpoint, the preservation of public health must be considered of first importance.

The smells and effluvia from filth and decaying matter does not directly create or convey specific contagion but does affect health by lowering the vitality, in this way rendering those exposed to them more susceptible to disease. The organisms that cause specific diseases must reach the blood through physical contact or by conveyance in connection with solid or fluid matter introduced into the alimentary or respiratory systems.

In many cities, streets are the common dumping ground for refuse and dirt from every source. Frequently the cleanings from dwellings, business houses, etc., are swept into the street. Such sweepings frequently contain the germs of diseases emanating from sick rooms or from diseased persons working or visiting business houses. Sidewalks are the common receptacles of expectoration and are so used by many persons affected with infectious diseases, such as tuberculosis, influenza, sore throat, diphtheria, etc.

In order to accomplish the greatest good our efforts should be more particularly directed: First, to preventing the formation of street dust;

second, to the removal, by efficient methods and in a manner that will prevent the unnecessary dissemination, of such dust as may be unavoidably formed.

Solid city refuse can, by the use of modern methods of handling, be collected and reduced to grease and fertilizer without becoming objectionable to the community. The most sanitary way of disposing of garbage is to burn it. In a number of cities garbage is dumped in vacant lots, frequently within the corporate limits. This is very objectionable from a public health standpoint principally because it acts as a breeding place for flies, the fly being recognized today as one of the chief means by which typhoid fever and diarrheal diseases are communicated.

The two diseases just mentioned illustrate beautifully the necessity of sanitary care of refuse. "Wherever men congregate and live together without adequate provisions for the disposal of excrement, there and then typhoid fever will appear. And in the spread of both typhoid and diarrheal diseases it is proper to speak of the house-fly as one of the principle agents of infection."

The house-fly breeds in filth of all descriptions. Therefore the presence of flies indicates sins against sanitation. In the attempt at eradication of the diseases mentioned, complete extermination of the house-fly is not enough. For the disease may still be caused by polluted water, milk and other vehicles. The only consistent and logical thing to do is to attend to proper sewage disposal, in this way depriving the fly of an important breeding ground and rendering him a harmless nuisance instead of an infection carrier. Any attempt to make progress by the mere destruction of adult flies or by efforts to screen them from dwellings is, figuratively speaking, putting the cart before the horse.

No garbage, offal or decaying or fermenting refuse of any description should be allowed to remain on premises. All refuse boxes, both from the house and stable, if they cannot be abolished, can at least be made fly-tight. Their contents should be covered regularly with copperas or chloride of lime. These chemicals will keep down odors and prevent the development of maggots. Garbage cans should be kept tightly

covered and, when emptied, thoroughly cleansed and sprinkled inside with kerosene to make sure that no larvæ are left alive. Where flies are being bred in neighboring places beyond one's control, they must be kept out of the house, so far as possible, by screened doors and windows. If, by chance, flies find their way into the living rooms, they should be destroyed without delay.

Sewage disposal as an item safeguarding public health is deserving of primary considerations; however, modern methods of handling sewage has made it practicable to collect, convey and dispose waste waters without necessarily causing any nuisance.

While it is a matter for health authorities and sanitary engineers, citizens should be alert to inquire regarding the sufficiency of the measures that are employed to protect them. There is little danger from defective plumbing, as formerly supposed. The main danger to a city is from pollution of its water supply in the outlying districts or from the accumulation of refuse, garbage or sewage in the streets, alleys and along the shores of waterways, allowing a direct means of contamination of polluted water or affording an opportunity for the house-fly to become a factor in spreading disease.

The general food supply should receive serious thought because of foods carrying disease germs. Flies crawl over fruits when exposed and unguarded by screens. Many people do not wash fruits before eating and this is a common source of human infection, particularly if a case of typhoid fever, diarrheal disease or tuberculosis near by is being carelessly handled. Also, if given an opportunity, the fly will carry the bacilli of typhoid from the excrement to exposed food in the kitchen or dining room. Again, they may feed on the waste of a sick room and on other filth and then visit neighboring homes, restaurants and groceries, crawling over milk and food which is subsequently eaten by human beings.

In this way they often spread abroad the serious diseases and cause the death each year of thousands of people, especially children.

The great secret of freedom from flies is cleanliness accompanied by screening of all openings of the home, especially of the kitchen and the dining room.

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THE TREATMENT OF EXTRA-UTERINE PREGNANCY.

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Extra-uterine pregnancy is the condition which obtains in the female when a fertilized ovum is permanently arrested somewhere in its course from the ovary to the uterus and undergoes development at this point of arrest or abnormal lodging place. The term ectopic has a broader meaning than extra-uterine, and refers not only to tubal and to ovarian pregnancies, but also to those cases in which the fertilized ovum lodges and develops in some abnormal diverticulum of the uterus.

This condition, on account of its practical problems, appeals to all members of the medical profession. It occurs far more frequently than is generally believed. It is often overlooked, often misdiagnosed. Inflammation and sepsis following a supposed miscarriage are often due to a ruptured extra-uterine pregnancy. Countless women can be saved from chronic invalidism, and many from premature death, by recognizing this pathological entity in its early stages and by subjecting it to timely and adequate surgical intervention.

So continuously destructive is the action of the syncytial cells upon the tubal wall, that tubal pregnancy is compared by many clinicians to a parasitic growth, to a malignant process, requiring in every case to be treated as such. Extra-uterine pregnancy is like a mine ready to explode without a moment's notice. It is highly important that the patient be at all times within easy reach of competent surgical assistance.

Extra-uterine pregnancy almost invariably is primarily tubal; ovarian pregnancies occur, but they are pathological rarities. Tubal pregnancy occurs in all races and at all periods of the child-bearing age. It may be intra-mural, isthmic or ampullary; unilateral or bilateral. It does not seem to show any predilection for either tube. In sixty cases reported by Newell¹ the right tube was involved in thirty, the left in twenty-four. In the remaining six cases the pelvic relations were not clearly made out. It may be the individual's first conception, or precede, be associated with, or follow one or more normal uterine pregnancies. Mussey, in the *St. Paul Medical Journal* of 1914, reports a study of 168 cases occurring in

the work of the Mayos. Of these cases sixty had never been previously pregnant. Normal uterine pregnancies have intervened between two extra-uterine pregnancies. Some cases have been preceded by one or more miscarriages, accidental or induced; many have occurred in primiparae and multiparae, after prolonged period of sterility and in a considerable number of cases one obtains history of previous inflammation, gonorrheal or other, of the internal genitalia. It is thought that inflammatory processes act as etiological factor by destroying the tubal cilia, and by producing kinks, strictures, adhesions and obliterations of the tube.

Every conceivable variation has been observed in cases of tubal pregnancy;² it has been repeated in the opposite tube, in the same tube, in a tubal stump. There has been simultaneous gestation in the right and left tubes and also simultaneous tubal and normal uterine pregnancies.³ Under the designation "Tubal Twin Pregnancy," three distinct conditions are included:

1. Where one ovum is intra-uterine and the other extra-uterine.
2. Where each tube contains an ovum.
3. Where both ova are contained in one tube.

Tubal pregnancy at times simulates and in some of the reported cases was associated with one or more of the following pathological conditions:⁴ ovarian cyst, salpingitis, pyosalpinx and hydrosalpinx of the opposite side, appendicitis, various forms of uterine displacement, and various uterine neoplasms.

What are the possible terminations of an extra-uterine pregnancy abandoned to the unassisted resources of Nature?

1. The pregnancy may go to term and a living child be delivered through channels created by the surgeon.⁵ In connection with this termination, one must keep in mind that extra-uterine children frequently die in the first few days of life; many of them have lived only a few hours. They are frequently the subject of deformity. Potocki comments on the low cranial dimensions of his case. When two years old the child could not talk, and did not recognize anybody—not even his nurse. The operation necessitating their removal from the maternal organism may prove fatal to them. It may prove fatal to the mother, either immediately from surgical shock or from excessive hemorrhage; or remotely from toxemia,

septicemia or pyemia. The removal from the abdominal cavity of a living, full term extra-uterine child is one of the most difficult operations one can be called upon to perform.

2. The pregnancy may go to term and the child remaining undelivered dies and persists indefinitely in the maternal organism. It may at any time become a menace to the life and health of the mother.

3. The fetus may die previous to term.⁶ Small embryos when expelled into the peritoneal cavity are promptly absorbed, unless the placenta retains a firm attachment to the tube or contracts new attachments. Fetuses that die at an advanced state of development cannot be absorbed.

The undelivered tubal fetus may undergo:

- a. Putrefaction.
- b. Mummification.⁷
- c. Maceration.
- d. Transformation into lithopedion.⁸ "In 1880, patient missed a period and for six months had symptoms suggestive of ectopic pregnancy. Ever since 1880, symptoms of abdominal soreness and distress occurring at irregular intervals. In 1907, a laparotomy was performed and a lithopedion was found surrounded and attached to the omentum and intestine; no attachment to uterus, ovaries and tube."

e. Septic changes:

1. From communication with neighboring organs.
2. From contiguity with neighboring organs.

After the death of the fetus, the liquor amnii is absorbed. No more is secreted. The cyst shrinks and the gestation-sac may be considered as a cyst—a fetal cyst. The fetal cyst may be merely:

1. A mechanical inconvenience to the maternal organism.
2. An obstacle to a subsequent intra-uterine pregnancy, and have to be removed to allow a simultaneous or subsequent uterine pregnancy to go to term.
3. A source of irritation to one or more contiguous organs, causing rectal or vesical disturbances; by compressing the intestines, determining an ileus; by compressing the bladder or ureters, causing urinary retention.
4. A cause of uterine displacement.
5. A cause of diagnostic errors.

6. The fetal cyst walls may and frequently do become adherent to surrounding organs and tissues, and the cyst by means of a perforative inflammation opens into the (a) bladder; (b) vagina; (c) intestinal canal, or (d) through the abdominal wall, by either or by several of which channels of outlet it eventually incompletely eliminates its decomposing contents.

To recapitulate: The cyst may rupture:

1. Into the bowel by one or several openings.
2. Into the vagina.
3. Into the urinary bladder, and the fetal bones and other cyst contents be expelled per urethram. "Ten years after this extra-uterine gestation, patient began to feel that something was always obstructing the passage of the urethra and causing intense pain and discomfort. Small pieces of bone often discharged with the urine. The bladder was found to communicate with a sac containing a large number of fetal bones. The patient was placed under chloroform five times, only a few minutes each time, with an interval of six days between the sittings, and 68 bones were removed. Some still remained in the sac." Rai.⁹
4. Into the rectum and the fetal bones be expelled through the anal canal.
5. Into the uterus.
6. Into a cyst of other nature contained in the abdominal cavity.
7. Through the abdominal wall.
8. The fetal cyst may open and be eliminated through one, two or more channels in the same patient.

Rupture¹⁰ is one of the terminations of tubal pregnancy. It is appalling in its suddenness and often overwhelming in its results. It may occur before or after the death of the fetus. Primary or secondary gestation sacs may rupture. The gestation may be arrested by this accident or may continue uninterrupted though changed in anatomical type. Rupture is associated with hemorrhage, circumscribed or diffuse, belonging to one of the three following types, or to a combination of two or of all these types: a. Extra-tubal; b. intra-tubal; c. intra-mural. If the amniotic sac be ruptured and there be an outflow of the amniotic fluid, gestation will come to an end.

Extra-tubal rupture takes place:

- a. Into the peritoneal cavity; if the ovum

does not perish, the pregnancy is continued as a tubo-peritoneal or peritoneal pregnancy.

b. Between the folds of the broad ligament. If the gestation be not interrupted, it will continue as an intra-ligamentary or tubo-abdominal pregnancy. Intra-ligamentary pregnancy is far more infrequent than peritoneal pregnancy. The layers of the broad ligament provide a ready-made capsule by means of which the amount of bleeding is restricted.

c. An intra-mural rupture may lead secondarily to an intra-tubal or extra-tubal rupture. In intra-mural rupture, a thin layer of muscle tissue and the peritoneum separate the blood-sac from the peritoneal cavity, or from the intra-ligamentary space. The condition is somewhat analogous to that which obtains when a saccular aneurysm ruptures and the blood escapes interstitially. If the abdominal opening of the tube be occluded, intra-tubal rupture leads to an accumulation of blood in the cavity of the tube, viz: hematosalpinx. If the abdominal end of the tube be not occluded, the blood passes out of the tube into the peritoneal cavity, giving us a pelvic hematocele or a hemoperitoneum. The ovum, continuing to develop in the tube, may rupture secondarily either into the peritoneal cavity or between the folds of the broad ligament, and gestation therein continue. If one variety of rupture fails to relieve the tension, the gestation-sac ruptures in another direction. In tubal abortion the ovum is carried out of the tube by the intra-tubal hemorrhage.

The hemorrhage that attends and follows rupture usually requires immediate surgical interference.

Tubal ruptures and tubal abortions are associated with hemorrhage. Hemorrhage may also result from perforation of the tubal wall by the development of the chorionic villi. The amount of blood discharged bears no relation to the extent of the rupture. Severe and even fatal hemorrhages have occurred from very small orifices. The rupture may be punctiform in size; may be a large tear; may be almost a complete rending of the tube. Rupture into the peritoneal cavity leads either to the formation of an hematocele, or to a flooding of the peritoneal cavity; the latter will prove fatal if the hemorrhage be not operatively arrested. Maternal death may be caused by one severe intraperitoneal hemorrhage,

or by recurring hemorrhages. The signs and symptoms of acute anemia are quickly produced.

If the extra-tubal rupture be between the folds of the broad ligament, a pelvic hematoma will result. This hematoma is almost invariably one-sided and, needless to say, is on the side of the rupture. In some cases it dissects forward between the uterus and bladder, or backward around the uterus beneath the peritoneum and extends to the opposite side. If tension within the hematoma is excessive, rupture may take place secondarily into the peritoneal cavity, giving us the combined condition of both intra-peritoneal and extra-peritoneal hemorrhages. The same may occur in a hematosalpinx. Excessive tension leads to tubal rupture either into the peritoneal cavity, or between the folds of the broad ligament, or in both directions. The hemorrhage associated with the rupture of a tubal or an ovarian gestation-sac either proves fatal, or a pelvic hematoma or a pelvic hematocele results. These encysted blood collections—hematomata or hematoceles—are partially or completely absorbed, persist as fibrous bands or masses, or become infected and lead to pus formation. If the suppurative inflammation be circumscribed, an abscess is formed. Should the inflammation spread to, or the abscess burst into the peritoneal cavity, there results a circumscribed or diffuse suppurative peritonitis. Should the inflammation extend to the retro-peritoneal connective tissue, a cellulitis results, with all its accompanying dangers. The expulsion of the uterine decidua does not imply the death of the extra-uterine fetus.

The migration of the ovum into the abdominal cavity, through the ostium abdominale, is known as tubal abortion (Bland Sutton). Tubal abortion may also lead to hematosalpinx. Usually, however, the blood escapes freely through the ostium abdominale into the cul-de-sac of Douglas, and either becomes encysted there, or escapes into the general peritoneal cavity. The three factors involved in causing abortion or rupture apart from such extraneous causes as bi-manual examination, etc., are:

1. The destructive action of the trophoblasts.
2. Bleeding.
3. Contraction of the muscular wall of the tube.

One should always be very careful and gentle

in examining a case of probable tubal pregnancy; the danger of rupturing one of these tubes by rough manipulation exists.¹¹

Tubal abortion may be complete or incomplete. In the former there is usually one attack of pain and weakness. In the incomplete form, we have repeated attacks of weakness. The abortion, if the amniotic sac remains intact, and if the ovum resists absorption, leads to a tubo-peritoneal or peritoneal pregnancy. If the villi or placental attachments are destroyed, the ovum, being unable to form secondary attachments to other structures, dies.

Treatment.—Extra-uterine pregnancy is as truly a surgical disease as appendicitis, and though, as in this disease, a clinical cure may at times be obtained by non-operative measures, it is not common for that clinical cure to be an anatomical cure. In ectopic pregnancy do not consider the viability of the child except as it endangers the life of the mother. We must destroy the fetus to save the mother. Without surgical aid extra-uterine pregnancy always terminates fatally to the child, and frequently causes the mother's death.

Nature's tedious methods of relief, and the many dangers to which the woman is obviously exposed during its occurrence, justify surgical interference. Even the absorption of large uninfected collections of blood is far more prolonged than post-operative convalescence. The ideal time for operating is before rupture takes place. Error should be made upon the side of prompt operation rather than on that of undue waiting.

In the hands of the average operator, the only possible dangers to which the mother is exposed by the operative removal of the dead or live ectopic fetus are sepsis, hemorrhage and shock. The first can be avoided, the second can be completely controlled, and the third can be minimized and almost always overcome.

Some operators make use of the terms "primary laparotomy" and "secondary laparotomy." In the former, the operation is performed during the life of the fetus. It is in accord with the theory and practice of modern surgery. It attacks tissues while they are healthy, in preference to awaiting Nature's blind efforts to improve conditions. Secondary laparotomy is the operation performed after the death of the fetus.

The diagnosis of ectopic gestation is in itself

an imperative indication for operation. Delay is inadmissible. The longer one waits, the more dangerous the condition becomes. A waiting policy is often fatal. Lives can be saved by accurate diagnosis, prompt decision, and skillful operating. The profession in general has not exhibited that keenness and alertness toward extra-uterine pregnancy which has characterized its study of appendicitis in the last few years.

In tubal rupture and in tubal abortion the first indication is to stop the hemorrhage. This indication is urgent. Hypodermic medication will not accomplish it. To stop this hemorrhage, place not your faith upon the coagulability of the blood, the lessened force of cardiac action, or such agents as heat, cold, styptics, and the like. Stimulants must not be used in internal hemorrhage until the bleeding vessels have been secured, as increase of cardiac and arterial tension would be followed by recurrence of bleeding. Open the abdomen; stop the hemorrhage by ligating bleeding points with aseptic absorbable ligature material, if you have it at hand, with antiseptic non-absorbable ligature material, if the former be not at hand.

Even in the absence of urgent symptoms, do not delay operation. To postpone operation is to incur adhesions and hematocele sacs in their various forms. As long as the embryo or fetus lives, the placenta increases daily in size, in vascularity, and in difficulty of removal. Furthermore, every day, the increasing size of the child and of the placenta adds to the danger of secondary rupture.

Having decided to operate, two pathways are open: 1. Through the vaginal wall. 2. Through the abdominal wall. In some difficult cases you may have to use both the abdominal and the vaginal route. We recommend the vaginal route in the following conditions; viz., pelvic abscess—when the gestation-sac has been converted into a pelvic abscess, when suppuration has occurred in an intra-ligamentary fetal cyst, and in all intra-ligamentary hematomata. The opening of pelvic abscesses by way of the vagina is a safe and wise surgical procedure. The results are almost always very satisfactory. 3. In those cases where the fetal parts closely press against the vaginal wall. Even here it may be necessary to make use of the abdominal route, in addition to the vaginal route. It is often impossible to remove the impregnated

tube through a vaginal incision. There is always greater danger of wounding the intestines when one makes use of the vaginal route. We prefer the abdominal route, because it enables the operator: 1. To remedy at the same time coexisting pathological conditions, hydrosalpinx, obliteration of the abdominal ostium of the unaffected tube, ovarian cysts, etc. 2. To more thoroughly and more rapidly arrest hemorrhage. 3. To make a more direct examination and thereby to judge better the extent of damage, and formulate a more accurate diagnosis, and effect a more conservative ablation of organs. 4. To have the operative field under much better control, to more quickly come in contact with the condition, and to better and more completely remove the fetal sac and its contents. The separated ovum or liberated fetus may ascend in the abdominal cavity, and it may be very difficult to find and remove it by the vaginal route. An abdominal incision enables the operator, in case of an incorrect diagnosis, to treat those conditions that simulate ectopic gestation. In operating sight, as well as touch, is a very useful aid.

The greatest difficulty that we encounter near term, at term, or after term in operating for ectopic gestation is connected with the removal of the placenta. A slight detachment of the placenta often results in alarming hemorrhage.

We make use of a supra-pubic or infra-umbilical incision about one-half-inch to one side of the median line, so the edges of the resulting wound are better adapted to our method of suturing the abdominal wall. Avoid cutting the epigastric vessels. Avoid cutting the urachus. Cutting into a patulous urachus is as significant as cutting into a urinary bladder. The cut must be repaired. Make timely and appropriate use of the Trendelenburg position. The patient must be placed in this position gradually, not suddenly. The return to the horizontal posture must also be gradual. The Trendelenburg position facilitates the gravitation of the intestines toward the diaphragm. It permits a better view of the pelvic tissues or organs. After the patient has been gradually placed in the Trendelenburg position, the intestines and the general peritoneal cavity are walled off from the pelvic cavity by gauze pads.

In all operations for extra-uterine gestation, the opposite tube and ovary should be carefully

examined, as they may be the seat of degenerative changes. In a few instances the condition is bilateral. Extra-uterine pregnancy in some individuals has recurred.

Never make a needless sacrifice of tissues or organs. In the absence of a positive indication, such as a highly contracted pelvis, preventing the birth of a living child through the natural channels, etc., never remove the non-diseased tube and ovary. As most extra-uterine pregnancies are tubal, early operation will permit the preservation of the ovary. The preservation of the ovaries is of benefit to the patient.

The main difficulty in early and late operations is hemorrhage. The ideal treatment for hemorrhage incident to operations undertaken for the removal of an ectopic gestation-sac is prophylaxis. Therefore, do not provoke uncontrollable hemorrhages. Proceed after having well sized up the situation. Hemorrhage must be controlled by ligation or by compression of the bleeding points. Normal salt solution must not be given, either intravenously, subcutaneously, or per rectum, before the bleeding points have been controlled or secured. Once the bleeding is under control its use is of signal benefit. It increases the volume of the circulating fluid. Do not close up the abdomen until you are satisfied concerning the hemostasis. Hemorrhage is most profuse if the fetus be alive at time of operation.

If possible, do not leave denuded peritoneal surfaces. They are possible avenues of infection. After ablation of one or both tubes, suture the folds of the broad ligament to each other from the superior pelvic strait to the angle of the uterus. Peritonization—that is, the covering with peritoneum of all denuded surfaces—lessens adhesion formation. These adhesions may be attended with colicky and other pains; may cause intestinal obstruction. This peritonization lessens hemorrhage and creates a barrier capable of limiting the extension of inflammatory processes.

In attempting to remove the fetal sac and its contents, be careful lest these efforts inflict much damage upon contiguous organs. Repair such damage, if feasible, before closing up the abdominal cavity.

In early, unruptured, tubal pregnancy, there are usually no adhesions. If adhesions be present they are to be separated, as in all other intra-

abdominal surgical interventions, with great care and by the same methods. The incision, about three inches in length, is carried through the different layers of the abdominal wall into the peritoneal cavity. The first step is to locate the uterus. Using the fundus of the uterus as a guide, and proceeding to the right and to the left, examine both tubes and both ovaries. Tubal pregnancy is located with about as equal frequency on one side as on the other. Separate all adhesions, if such exist, of the gestation-sac to contiguous organs. Then remove the gestation-sac (which is usually tubal), as a whole, if possible, by total resection of the Fallopian tube involved.¹² Suture the folds of the broad ligament together; leave no denuded peritoneal surfaces. Close up the peritoneal cavity. Post-operative treatment is that of uncomplicated laparotomy. If the pregnancy be ovarian in type, and be early and unruptured, do a typical ovariectomy. Accuracy and rapidity in operating is as essential in these cases as in any other intra-abdominal work.

If the gestation-sac is ruptured and hemorrhage has occurred or is occurring, after opening the abdominal cavity immediately locate and keep in view the fundus of the uterus. Determine on which side is the ruptured gestation-sac. Seize the uterus, preferably with the hand or with a double tenaculum. It is a most important landmark. Having determined on which side the rupture is (it is usually tubal), apply a clamp at the uterine end of the tube. This will stop all further hemorrhage from the ovarian artery of that side. Apply another clamp immediately below the tube, compressing the folds of the broad ligament, but not injuring the ovary. Then remove the affected tube and the gestation-sac. Ligate all bleeding points, suture the folds of the broad ligament and the tubal surface of the uterine stump. Remove as expeditiously as you can the easily removable liquid blood and blood clots contained in the peritoneal and pelvic cavities. Remove the embryo if it can be found without prolonged search. Let there be no needless exposure, no needless traumatizing of the intestines. Mechanical, chemical and thermal irritation of the peritoneum intensify operative shock, and may be followed by the aperistaltic form of ileus. Post-operative treatment is that of acute internal hemorrhage for which a laparotomy has been performed. Use normal saline solution *secundum artem*.

The most dangerous operative conditions, from the maternal standpoint, are presented by those in which the fetus is alive. In these cases the hemorrhage frequently is appalling. Some authors have suggested that the abdominal aorta be compressed. When the placenta is attached to the line of incision, the hemorrhage is profuse; it is checked by firm compression. In those cases in which the fetus is alive, we have two things to accomplish, and they must be accomplished with the preservation of the mother's life. The first thing to accomplish is the removal of a living child. The last and most important is the removal of the ovular debris—placenta, membranes, etc. One is not often called upon to operate on cases in which a living child is present. For a physician knowingly to abstain from operating in a case of extra-uterine pregnancy before it reaches term is, to say the least, injudicious. The best practice is to terminate these pregnancies early, before the development of the ovum is much advanced.

Remove the fetus without disturbing the placenta. If the fetus is alive, after having opened the abdominal cavity and protected the peritoneal cavity by compresses from the outflow of amniotic fluid, ligate the umbilical cord as in a normal pregnancy and remove the fetus. Have the amniotic fluid escape externally as much as possible. Upon the maternal end of the umbilical cord a clamp is placed, the umbilical cord being cut either between the ligature and the clamp or between the two clamps.

If the fetus has reached term or near term and is dead, there is some difference of opinion as to which operation is the preferable method—the immediate operation or the delayed operation—until the fetus has been dead for a month or longer. Our experience leads us to believe that the danger incident to the policy of expectancy is so great that if the fetus is dead, be that death recent or of some standing, it should be removed without delay. Exceptionally, our incision may carry us into the fetal sac. This occurs in some extra-peritoneal or broad ligament pregnancies and the peritoneal cavity is not opened. In this variety the sac and placenta are entirely beneath the peritoneum. The latter may have been pushed up, stripped, as it were, from the anterior abdominal wall for a greater or less distance. Without disturbing the placenta, after having ligated the umbilical cord near the placenta

hastily remove the fetus. Evacuate the sac contents and then after separating the sac and the placenta from the surrounding structures to which they have become adherent, remove them. Usually our incision carries us into the peritoneal cavity. After placing the patient in the Trendelenburg position, separate the sac from the contiguous viscous or viscera to which it adheres. Control hemorrhage as you proceed. Operate rapidly. The general peritoneal cavity is protected by gauze compresses, which are numbered and counted, and then the incision is carried into the ovum. Occasionally, you may be able to remove the ovum as a whole. If the placenta is not safely removable, if the nature of the adhesions of the surrounding organs to the ovum is such that their separation would prove disastrous, content yourself with evacuating the fetal cyst and then suturing its walls to the abdominal wound. The sac must be packed daily until the placenta has been expelled and the sac cavity obliterated. If the placenta is to be left behind, it is better that it be not disturbed.

The following methods have been employed:

1. The fetus, the umbilical cord, and the amniotic fluid have been removed. Everything else has been left in situ and the abdominal wall closed. This is an extremely risky experiment.
2. The fetus is removed, and more or less of the sac is resected. Drainage of the sac cavity is employed, and the placenta and sac are left for spontaneous expulsion. This is the most frequently employed procedure.
3. After the removal of the fetus, umbilical cord and amniotic fluid, the placenta is removed in part—so much of it as is easily separated—and the remainder is left to spontaneous absorption.
4. The placenta is left in situ after removing the fetus. Then, after the expiration of a certain time, when it is hoped that the blood supply is spontaneously cut off, the placenta is shelled out.
5. The placenta and entire ovum are removal immediately. Ideal measure, if feasible.¹³
6. The placenta and gestation-sac are removed at once, likewise the neighboring organs, the uterus and ovaries, providing the hemorrhage cannot otherwise be arrested.¹⁴
7. Preliminary ligature of the uterine and ovarian arteries of the side from which the

placenta received its blood supply, followed by removal of the placenta.

8. In some cases, the hemorrhage from the placental side was best controlled by inverting that part of the intestinal wall to which the placenta was attached. In other cases, the operators found it necessary to do a supra-vaginal hysterectomy and unilateral or bilateral ablation of the uterine appendages.

There is no disputing the fact that the fetal sac and placenta should be removed completely if the procedure be consistent with the safety of the mother. The complete ablation of the ovum is theoretically the only perfect operation.

The method we employ in those cases in which we fear to disturb the placenta is the following: After incising the sac, removing the fetus and other intra-ovulatory contents, and ligating the umbilical cord close to its implantation, we resect a portion of the sac wall and sew what is left to the abdominal wound, thus closing off the general peritoneal cavity. This leaves a large pouch, which is packed with strips of aseptic gauze. Endeavor to keep this sac cavity aseptic until all the placenta has sloughed out of the wound. The elimination of the placenta by this method takes from twenty to fifty days.

In some cases a vaginal drain has to be used, in addition to the abdominal drains. The first strips of gauze that are inserted in the fetal sac are made to serve the offices of a compress and of a tampon. They are used to check the bleeding. After the first dressings, the gauze strips are used more with drainage in view. After the fetal cyst has been sewed to the abdominal wall, or immediately previous, according to the exigencies of the case, the compresses that have been used to protect the general peritoneal cavity are removed. Sewing of the sac wall to the abdominal wound shuts off all communication between the cyst and the peritoneal cavity. We use No. 3 catgut to suture the sac wall to the abdominal wall. The abdominal wound is closed as in those cases in which a Mikulicz drain is employed. Post-operative treatment, symptomatic.

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RECOGNITION AND TREATMENT OF ECTOPIC GESTATION.*

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Eight years ago I read a paper before the American Gynecological Society at its meeting in Philadelphia, in which I quoted from Dr. Charles D. Meigs, writing in 1848, which quotation I will venture to repeat at this time. He described a patient suffering from symptoms which he said, without doubt, led to the diagnosis of rupture tube-sac of pregnancy, and asserted that such a diagnosis "would not lead to any helpful therapeutic or surgical intervention, for nothing is to be done in these melancholy cases beyond the adoption of mere palliative measures." Again in his work on "Females and Their Diseases," he exclaims, "What, alas, can we do in these cases? We could make an incision in the abdomen and clear away the coagulum and serum, but who is bold enough to do so? Who is astute enough to discriminate between all the possible causes of such phenomena with so much clearness as to warrant him in the performance of a gastrotomy for Fallopian pregnancy? There is no such wise and bold surgeon; and therefore, nothing remains for us but to extend all the relief within the narrow boundaries of our power and calmly await and submit to the inevitable end." Is it surprising that under such hopeless circumstances, he says, "A physician may be calm and even cheer-

ful, but a merry doctor is a very singular phenomenon."

I am glad, however, that I can come to you with a more hopeful message. The discovery and practice of asepsis has enabled us to explore and make accessible regions that were formerly "terra incognita." In presenting this subject I have taken the liberty of including under it abortion in a tubal pregnancy; the extrusion of the fetus in its envelop from the abdominal end of the Fallopian tube. In either case there is rupture of the relations of the developing ovum with the maternal structures. I would further include under this subject those cases in which the tubal wall becomes thinner, and finally perforated by the growth of villi: no rupture occurs, yet as profuse hemorrhage follows as in rupture.

In the great majority of cases of ectopic gestation, the fecundated ovum develops within some part of the tube. The obstacle which has led to its occurrence may permit it to progress only to the outer portion of the tube; its voyage may have carried it to the central portion, or even to the uterine end. The development of the misplaced ovum results in distention and gradual thinning of the tubal wall. The result of this encroachment depends somewhat upon the situation; if in the outer portion of the tube, the ovary and structures adjacent may serve to form a part of the sac wall, leading to agglutination and the formation of an adventitious wall. The gestation sac thus comes in intimate association with the ovary, coils of intestine, side of the uterus or any structure which may have been in close enough association with the tubal end. After a time, however, its growth leads to its extrusion from the tubal wall and terminates in what is known as a tubal abortion. Gestation occurring in either the central or uterine portion of the tube develops until the wall becomes so thinned and stretched that a rupture occurs. This rupture may be a mere break in the tissue. The break does not necessarily lead to extrusion of the ovum, for the surfaces may be plastered up and the ovum continue to develop until another rupture, partial or complete, occurs when it may be extruded from the sac. Rupture in the great majority of cases takes place on or before the eighth week. A résumé of an article in *The International Abstract of Surgery*, 1914, Kastanajeff reported 717 cases of ectopic gestation in a hospital in Petro-

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grad, of which nearly 600 ruptured before the end of the eighth week. Every obstetrician and gynecologist of large experience has seen numbers of cases in which the gestation has terminated in rupture in from three to five weeks. It is the exception rather than the rule for the patient to go a longer period without its occurrence. Such cases are so frequently overlooked and attributed to other causes that it seemed to me a proper subject to bring before your Society.

Much stress is laid upon the one-child sterility, in the fact that a woman goes for years without the occurrence of pregnancy, then misses one or two periods and is taken with violent pain with symptoms of internal hemorrhage and the evident termination of an ectopic pregnancy, but such characteristic conditions are not always present.

Mussey, in *The St. Paul Medical Journal* of 1914, reports a study of 168 cases occurring in the work of the Mayos. Of these cases sixty had never been previously pregnant. Pregnancy in the tube may occur in the first conception, may follow a recent abortion or parturition at full term, or it may occur in a woman who has not given birth to children in a number of years. As I have indicated the symptoms may occur in a patient who has not missed a period, who does not even realize she is pregnant. The occurrence of pain and discomfort in the abdomen may be not infrequently attributed to something she has eaten,—and what patient, if she thinks of it has not eaten something? The appearance of a show of blood may lead her to believe that it is the premature appearance of her next menstrual period. Even where a period has been passed and the woman believes herself pregnant, the inconvenience and uncomfortable abdominal phenomena and the association of a bloody discharge may seem to indicate that she has not been as careful as she should have been, consequently it is not surprising that both patient and physician are often mislead and the actual condition overlooked.

It is important where possible that ectopic gestation should be recognized prior to the occurrence of rupture, but experience discloses that such diagnosis is comparatively infrequent. As development of the ovum in the tube progresses the patient experiences colic-like pains and discomfort, more particularly marked on the side

of the abdomen affected. The uneasiness and the continued recurrence of such attacks should lead the patient to consult her physician, and a physician so consulted should not take it for granted that it is due to the contraction of the developing uterus, to disturbance of the digestive tract, to constipation of the bowels, but subject the patient to a careful investigation. The existence or non-existence of previous pregnancy, the history of definite conditions which should cause tubal changes, the presence of fibroid growths or other changes that may cause a tubal pregnancy should all be considered a part of the investigation. Such an investigation should first lead to careful palpation of the uterus to determine any changes within it. Examination of each tube should be most carefully and prudently made, as compression of such a development between the fingers within the vagina and the hand over the abdomen may rupture the sac. The recognition of an enlarged tube on the side in which the discomfort is experienced, the greater pulsation in the uterine artery on that side should justify the suspicion of ectopic gestation. I cannot, however, too earnestly protest against forcible palpation in such cases as I have seen one, and known of other cases, in which fatal hemorrhage resulted from rupture due to such an examination. The termination of tubal pregnancy, either by rupture or tubal abortion, should be suspected where a woman has passed one or two periods, has suspected she was pregnant, has general digestive or nervous symptoms, has felt more or less discomfort in one or the other side of the pelvis, has been taken with sudden, severe, lancinating pain which has rendered her unconscious or caused her to drop in a faint, when her pulse becomes feeble, even absent at the wrist, her skin blanched and covered with perspiration, she is unable to raise her head without the sensation of fainting, possibly remaining unconscious. Such symptoms, even though the patient has not missed a period should lead to the suspicion of internal hemorrhage of which ectopic gestation is with extremely rare exceptions the cause. Such a condition would seem to the majority of men to have but one explanation for such a group of symptoms, but instances occur over and over again where a physician is called in and upon making investigation is told the patient has eaten a few peanuts, or something out of the ordinary, and at

once concludes it is a case of acute indigestion, and proceeds to treat her accordingly. He may ascribe the phenomena to shock or a heart lesion, and proceeds to administer stimulants with a view to her recovery. Not infrequently such an attack occurring on the right side is attributed to appendicitis, to renal calculi impacted in the ureter, or to gall-bladder colic. In the diagnosis it is important that the physician concerned should carefully weigh the subjective as well as the objective symptoms. The appearance of the patient, the profound shock, the weak or imperceptible pulse and the combined symptoms should justify the suspicion of internal hemorrhage. Nothing can be determined by bimanual palpation. Fluid blood in the abdominal cavity is not palpable; indeed severe manipulation with a view to determining the condition is detrimental, in that it may force out a clot upon which we must depend to close a bleeding vessel. It is true a woman may fall in a faint from severe shock, fright, or very severe pain and distress in the abdomen, but the pain occurring from appendicitis, impacted calculi in the ureter or gall-stones is more gradual in its onset, and while attended with severe pain it is rarely the patient becomes unconscious, but is more likely to be crying out with the agony and distress.

The effect of the termination of pregnancy, whether in rupture, tubal abortion or in perforation of the tubal wall by the villi, varies greatly in different cases. The perforations by the villi, although of small size, may lead to dangerous hemorrhage and require active measures for its relief. It is not attended with the severe pain incident to rupture, but the anemia is insidious and progressive. The patient develops a progressive anemia, becomes feeble and shows symptoms of faintness and soon more or less abdominal tenderness from the irritation of the blood on the peritoneum.

In tubal abortion the pain is less marked than in rupture of the tube, but the hemorrhage may be much greater and consequently the constitutional condition more marked. The prostration in these cases may be very marked and the disorder the more obscure because of its being frequently associated with but little pain. The bleeding may have preceded the abortion by a bloody discharge from the uterus, and this may continue for days subsequently. The hemorrhage

ceases through the clotting of blood in the tubal cavity previously occupied by the embryonic sac, completely filling it. When opening of the abdomen is deferred for some days the tube will be found filled with a firm clot. It can be felt through a thin abdomen as a distinct tumor or sac.

Rupture of the tubal wall is always attended with severe agonizing pain, but the amount of bleeding varies greatly according to the seat of the break, and the relation of the vessels to the placental formation. In some instances the bleeding is very slight and the shock not marked. The patient may have thought that she was having or had had an abortion in which she is confirmed by the discharge from the uterus which may consist of clots and shreds of membrane attended with cramping sensations. The length of time the flow continues finally drives her to consult her physician, and the vagueness of her symptoms may induce him to think her suspicion of an abortion is correct, and if he is imbued with the idea that all such cases should be curetted, proceeds to that measure and never realizes what the condition was.

Rupture of the uterine end of the tube is much more likely to be attended with severe hemorrhage. The pain, profound shock, a continuous bloody discharge from the vagina, in a woman who had thought herself pregnant, especially when the faintness and weakness of the patient is out of all proportion to the depression incident to the discharge from the vagina, should lead to the diagnosis of internal hemorrhage. When we see how the abdominal end of the tube becomes distended until the ovum is separated from it through its increase in size, it is quite within the realm of imagination to think that the ovum, which lodges at the extrauterine end of the tube may likewise dilate it, and abort from it into the uterine cavity where it may terminate by expulsion into the vagina, thus justifying the suspicion that the patient has aborted, or it may be retained and complete the gestation within the organ.

The sudden and insidious onset, the profound depression and often great danger attending the termination of an ectopic gestation makes its study and prompt recognition of the greatest importance. A woman walking the street, or about her house attending to her duties or enjoying herself among her friends, without any suspicion on

their part that she is otherwise than what she seems, is taken with severe pain and with an agonizing cry falls in a faint, may be aroused to pass into another, and be a corpse in from one-half hour to four or five hours. The majority of physicians called to a patient so suffering will feel that she needs stimulation, and will proceed to give strychnin, atropin or digitalin hypodermically. He may resort to salt solution by the rectum, through hypodermocleisis, or if unfortunate in having at hand the apparatus, may proceed to intravenous injection of salt solution. Stimulation is not what is needed. The only hope for such a patient outside of securing the bleeding vessel, is that she may grow so weak that a clot shall form in the vessel and become so firmly fixed before she rallies, that it shall continue to block it. Anything then, that serves to increase the blood-pressure is against her interests in that it threatens to drive out the loosely attached clot and renew the bleeding. While I feel in duty bound to urge with all my energy the danger of these severe cases, I am obliged to admit that they are exceptional, that in the great majority the gestation sac ruptures with the escape of a not dangerous quantity of blood and recovery follows without operative interference; probably without the true character of the condition having been recognized.

The knowledge that many cases recover, and that even those profoundly shocked may rally and recover without resort to surgery has led both attending physicians and those consulted to procrastinate, and sometimes lose patients that might otherwise have been spared. Indeed, the *surgeons* are found divided into two schools; those who would operate in all cases at once, and those who would wait for the patient to rally from the shock, and even wait to see whether she cannot dispose of the effused blood, and operate only as a last resort.

The treatment of the patient may well be considered from the condition and environment under (1) when seen immediately after rupture; (2) when in collapse, and (3) when in hospital with proper environment.

1. A patient seen at her home in profound shock, possibly unconscious, with feeble flickering pulse, and the history indicating the possibility of internal hemorrhage should be kept quiet, be given a hypodermic injection of morphin and pre-

served from the indiscreet efforts of her friends. Preparations should be made at once to open the abdomen and secure the bleeding vessel, and if the environment of the patient is unfavorable for such a procedure, or the physician knows himself incompetent to ensure her skill and aseptic surgical treatment, he should lose no time in getting her where she can obtain it. The operation should not be done unless it can be done properly and with thorough asepsis, for the loss of blood incident to the condition causes such patients to have very low resistance and consequently it is better that they risk death from hemorrhage, rather than undergo an operation which is almost certain to be followed by sepsis with low resistance.

2. The patient in profound shock, the pulse feeble or imperceptible at the wrist; what shall be our course of treatment? Many advise that the operator wait for the patient to rally before resort to surgery—and refer to the surgeon who waits to restore his patient before amputating a crushed or injured leg. In the latter, the patient is ensured against hemorrhage by the application of a tourniquet, while in the ectopic woman the vessel is open to resume bleeding with the increase of blood pressure as she revives. There is no surety that the hemorrhage will not persist and make the chance of recovery slight. One advocate of delay doubts death from hemorrhage, and asserts that its improbability is indicated by the fact that the ovarian arteries in bitches can be cut and the blood will coagulate as the heart power fails, and the dog recover. Any of us, however, who have had the misfortune to lose a patient through the slipping of a ligature are inclined to doubt the similarity of the coagulation in the canine and human females. Experience has demonstrated and coroners' records of our large cities show that hemorrhage following rupture in ectopic gestation claims its toll of victims every year. I hear someone ask, "Would you proceed to operate on a patient who seemed about to expire from shock?" I certainly would feel that where there was life there was hope, and the patient's chance would be enhanced by combating the possibility of further hemorrhage.

While the preparations were being made for the operation, or if they had been made, I would open a vein and begin intravenous injection of a 1 p.c. salt solution to which had been added a dram of

adrenal solution (1-1000), and let this be continued during the operation and subsequently until between one and two pints had been administered. The operation would consist in hurriedly opening the abdomen, discovery and ligation of the bleeding vessel, which may or may not include the removal of the sac according to its size and situation. If small and situated in the cornu of the uterus, it might be sufficient to secure the hemorrhage and ignore the sac. No time should be lost in the attempt to rid the abdomen of fluid blood. Large clots may be turned out and the abdomen closed. The patient is placed in bed and if she has not had morphin enough is given sufficient to ensure her against disturbance by her condition or what goes on about her. The Murphy drip should be instituted and continued until her vessels are distended.

3. What shall be the course of treatment in a patient who has evidently had a rupture, but whose condition makes it evident she is in no danger of a fatal termination from hemorrhage? The occurrence of hemorrhage should require opening the abdomen, but the operation need not be so urgent, and if desired, a time may be selected at the convenience of those having her in charge. A collection of blood within the abdomen may become infected from conditions previously existing in the pelvis, or through its contact with coils of intestine from microorganisms passing through the walls. Even where absorption occurs, it is slow, a serious tax upon the energy of a patient with lowered vitality and causes adhesions and thickening of the peritoneum, with displacement of the uterus and other pelvic viscera.

It has been suggested that the disorder which produces ectopic gestation in one tube is likely to exist in the other one, and result in its recurrence should the tube remain, and hence to preserve the patient from a repetition of her peril the second tube should be removed. The fact that patients occasionally do return because of a second ectopic would seem a justification of this advice. Oden (*Journal Michigan State Medical Society*, 1915, XVI, 104) reports a second operation for ectopic gestation five months after the first. I have seen recurrence in two patients necessitating a second operation. On the contrary I have seen a number of patients who have undergone an op-

eration for ectopic gestation who have subsequently given birth to children.

Case 1. The following case is an instructive one: Mrs. G. A., aged 33 years, recently married, having missed a menstrual period was seen with the late Dr. Sibbald on the evening of August 11, 1911. Shortly after 10 o'clock that morning she had been standing before her mirror making preparations for a trip to the city, when, without warning, she was taken with severe pain in the right side and fell in a faint. A physician was called, who, hearing that she had shortly before eaten some nuts, concluded she was suffering from acute indigestion and directed an emetic to be followed by purgation. Before these measures could be instituted her family physician came and, suspecting the possibility of internal hemorrhage, gave a hypodermic of morphin and directed she should be disturbed as little as possible. When I saw her twelve hours later, she was very pale, had a feeble, flickering pulse, skin surface cold, temperature sub-normal, resting quietly under morphin. I had no hesitancy in making a diagnosis of ruptured ectopic gestation with severe internal hemorrhage, but as she had evidently passed the danger point, I deferred operation. She was transferred to St. Joseph's hospital on the morning of the 14th and shortly after the abdomen opened. A large quantity of blood was evacuated and a rupture found in the right cornu of the uterus. The tube and ovary with some subperitoneal fibroid growths were removed. The uterus contained other fibroid growths, but her condition was not such as to justify further interference. She had an uninterrupted convalescence and has since given birth to a child.

Case 2. On Jan. 29, 1913, Mrs. A. C. was brought to the Jefferson Hospital as an emergency case with the diagnosis of acute appendicitis, and was sent by the examining physician to my service. I was operating when the nurse in charge came to my intern to inform him of the admission. He gave some instructions, but she returned in a few minutes, so I told him to go; that I would finish the operation with the aid of the student helper. Subsequently I went to the ward and found the intern engaged in the practice of artificial respiration, from which he desisted with the intimation that it was too late. The patient was apparently dead. I could feel neither a pulse nor hear any heart sounds. I saw an apparent attempt at respiration. I turned on the oxygen from a tank, placing the tube in her nostril, and directed that he should begin intravenous injection. Shortly after the efforts at respiration were more forcible and she was run into the operating room, hastily prepared and the abdomen opened. Three quarts of fluid blood were evacuated, and the left tube found to have been ruptured was ligated and removed. The patient recovered, having had a slight phlebitis. Some 1,500 cc. of salt solution containing a dram of adrenal solution (1-1000) and two ounces of whiskey were thrown into a vein. I am not certain that the whiskey may not have rendered the veins more sensitive to the phlebitis.

My greatest solicitude during recent years has not been awakened by the patients on whom I have operated early, even though in shock, but by those seen late or where for some reason the surgical treatment has been deferred. The patient is too much depressed to be influenced by fear of the operation. The administration of ether in small quantity under such circumstances is a stimulant, and the vessels are being filled with saline solution. The prime consideration is expedition; no time is to be lost in the removal of the fluid blood; its presence will aid in the more rapid resuscitation where infection has been avoided. The belly may be filled with salt solution before the wound is closed, and its completion should be followed by the Murphy drip. The first consideration is the arrest of the hemorrhage and to thus place the patient in a position that her powers can be husbanded.

The study of this subject seems to me to justify the following conclusions:

1. The general practitioner should be so trained that the concurrence of sudden abdominal pain, shock, faintness, feeble pulse and symptoms of profound anemia will awaken the suspicion of internal hemorrhage, and this should govern his procedure in treatment.

2. The physician so trained, if he thinks at all, will not ply such a patient with stimulants, but rather administer a sedative, for he will remember that a vessel is open, and that the only hope for relief outside its direct control by clamp or ligature is through the formation of a clot, whose further action increased blood-pressure would imperil.

3. As it cannot be assumed, in any case, that the clotting will be effective in the control of the hemorrhage, the greatest certainty is through efficient closure of the bleeding vessel through its ligation, and measures should be employed to secure this under the most favorable circumstances.

4. Where it is not practicable to secure immediate surgical relief the patient should be placed under the influence of morphin and be kept free from annoyance until she can be placed in proper environment for surgical measures.

5. Immediately preceding, or simultaneously with the incision of the abdomen, active stimulation, the most efficient of which is the intravenous transfusion of saline solution to which adrenalin

has been added, should be begun and continued during the operative procedure, by which any additional shock through operation is more than counteracted.

6. Even though it is apparent that operation is not needed to ensure against further hemorrhage, to open the abdomen is advisable for the removal of large quantities of clotted blood as the forces of the patient are relieved from its care and disposal.

THE TECHNIQUE OF THE ENUCLEATION THYROIDECTOMY.

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CHICAGO.

The operation about to be described will be found practically applicable to all parenchymatous goiters, whether of the cystic, colloid, fibrous, or mixed variety, but should never be attempted

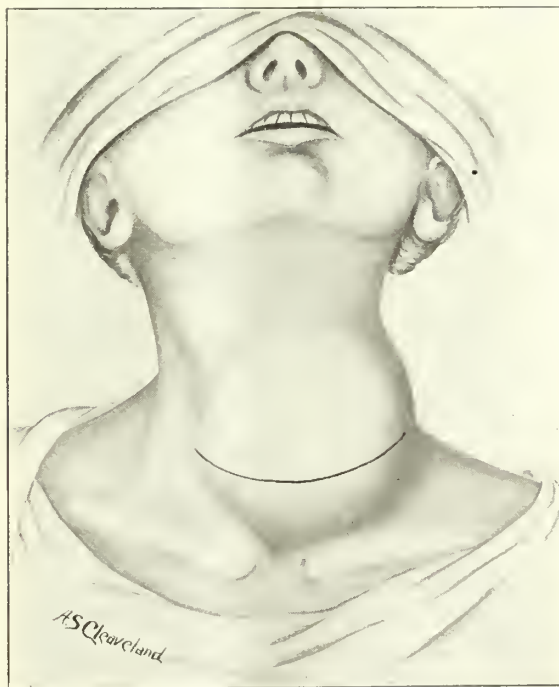


Fig 1. Line of Incision.

upon the vascular or active hyperplastic enlargements. It is a method very largely eliminating the use of clamps and accompanied by a minimum loss of blood, never followed by nerve complications, and when even mediocre surgical judg-

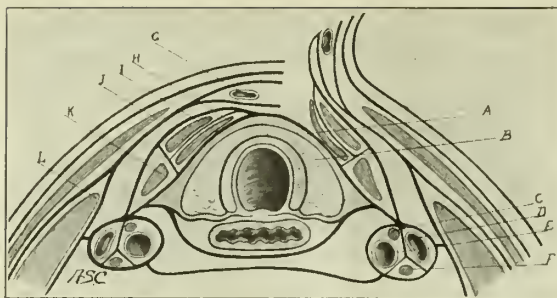


Fig. 2. A, True Capsule. B, Thyroid Gland. C, Descendens Cervici Nerve. D, Internal Jugular Vein. E, Common Carotid Artery. F, Pneumogastric Nerve. G, External Jugular Vein. H, Sterno-Thyroid Muscle. I, Sterno-Hyoid Muscle. J, Platysma Myoides Muscle. K, Anterior Belly of Omo-Hyoid. L, Sterno-Cleido-Mastoid Muscle.

ment is available, of extreme breadth in application.

In operating on this class of goiter it has been observed that the principle blood supply is carried by the membranous coverings of the gland, the so-called capsule, variation from this rule being very uncommon, if we except the vascular (exophthalmic) group. The branches entering the gland itself are uniformly small, and although numerous, are not of such lumen as to occasion troublesome hemorrhage.

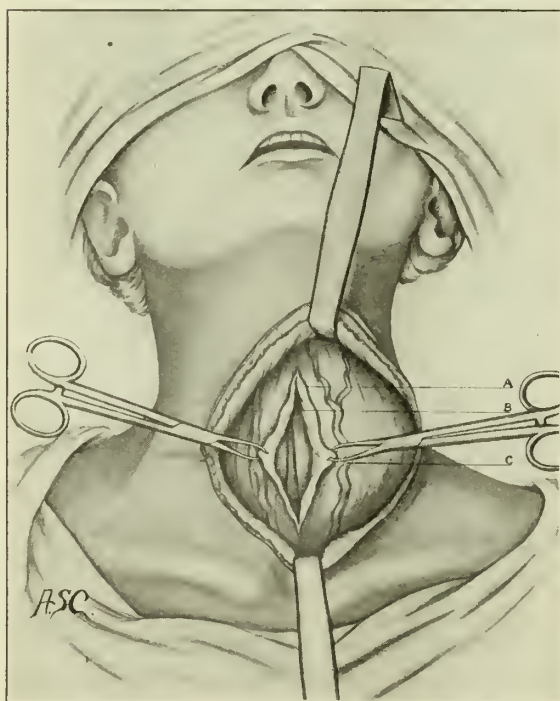


Fig. 3. Line of Cleavage in the Superficial Fascia; One-fourth Inch to the Side. A, Superficial Fascia. B, Sterno-Thyroid Muscle. C, Anterior Jugular Vein.

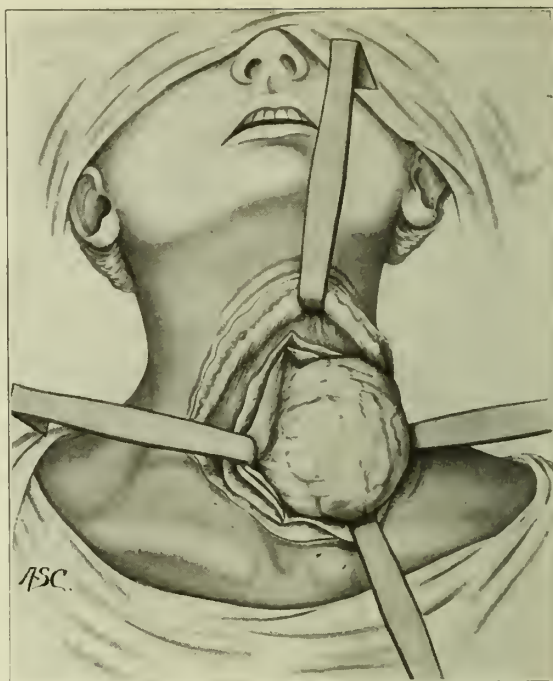


Fig. 4. The Thyroid Gland Is Here Seen Through the Anterior Layer of the Deep Fascia and the True Capsule.

The foregoing observations led to a more minute study of the anatomy of the organ and the development of a new technique which has worked so well that at present we follow it in more than two-thirds of all goiter cases.

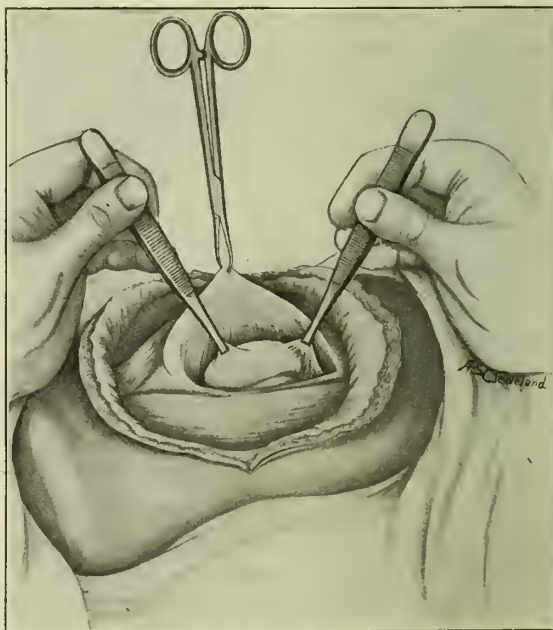


Fig. 5. The True Capsule Held Up by the Tissue Forceps and the Superior Thyroid Artery Seen Through the Thin Tissue.

The primary incision is made through the skin from the border of one sterno-cleido-mastoid muscle to the border of the other, as low down as possible for cosmetic effects (Fig. 1). The skin is now reflected by blunt dissection sufficiently to

comparatively free from large vessels, and the thyroid capsule will be seen (Fig. 5). No clamps are used in these procedures, hemorrhage so far being slight and automatically ceasing on the correct separation of the tissue layers. We then open into the true capsule, and by posterior pressure, deliver the tumor (Fig. 6).

The tumor may now be enucleated without difficulty, leaving a comparatively bloodless bed, as shown in Figure 7, which depicts the arrangement of vessels in the true capsule.

Silkworm-gut is now inserted for drainage, and the opening closed with catgut sutures.

Figures 8 and 9 are inserted to show the variation in the regional anatomy, as seen from outside the sac of the gland. The difference in location and relation of the inferior thyroid artery and the recurrent laryngeal nerve and the coverings of the gland (the sac), is evident. Herein lies the danger to be overcome in other methods, in that in the adjustment of forceps on the artery

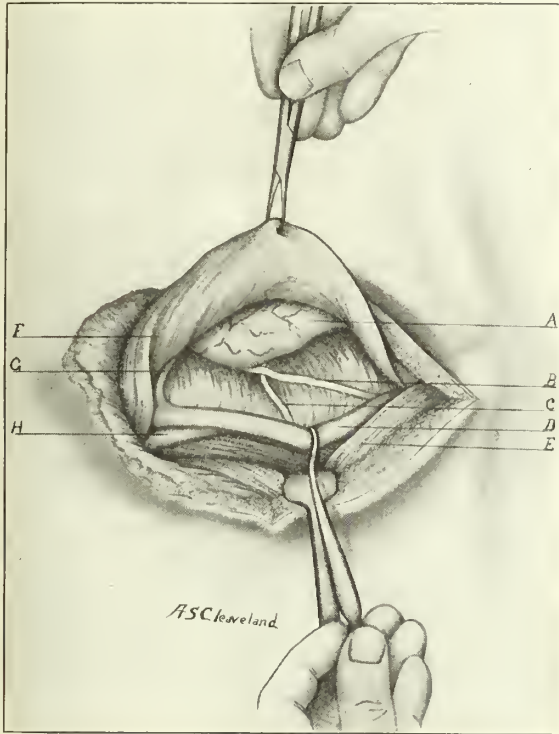


Fig. 6. Seen From Outside the Capsule. Recurrent Laryngeal Nerve Runs Over the Inferior Thyroid Artery. A, Outside of Sac. B, Recurrent Laryngeal Nerve. C, Inferior Thyroid Artery. D, Carotid Artery. E, Sterno-Cleido-Mastoid Muscle. F, sterno-Hyoid and Sterno-Thyroid Muscles. G, Superior Thyroid Artery. H, Internal Jugular Vein.

provide an ample field for working. The regional anatomy is to be observed. No muscles are cut in the course of this procedure, for which reason the surgeon must be very well informed as to the structural relations with which he will now deal, to which end Fig. 2 is inserted.

The fascia is now raised slightly and cut parallel to the contained veins, and the cleavage line between the revealed edges of the sterno-thyroid and sterno-hyoid muscles observed. (Fig. 3.) These muscles are now separated and retracted (Fig. 4), revealing the encapsulating fascia of the gland. It will thereupon appear that the true capsule of this organ blends with the so-called Kocher fascia, and is very rich in arteries and veins. Open the anterior fascia, which is

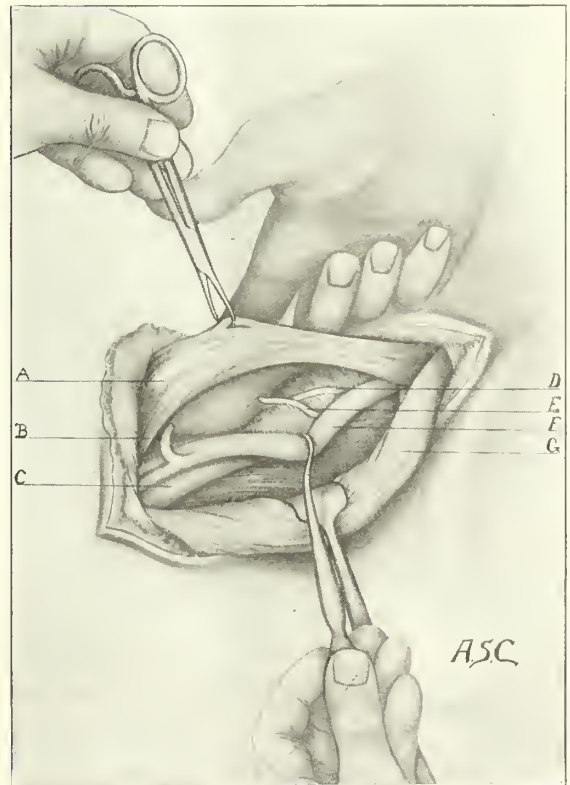


Fig. 7. Seen From Outside the Capsule. Recurrent Laryngeal Nerve Runs Under the Inferior Thyroid Artery. A, Sterno-Hyoid and Sterno-Thyroid Muscles. B, Superior Thyroid Artery. C, Internal Jugular Vein. D, Recurrent Laryngeal Nerve. E, Inferior Thyroid Artery. F, Carotid Artery. G, Sterno-Cleido-Mastoid Muscle.

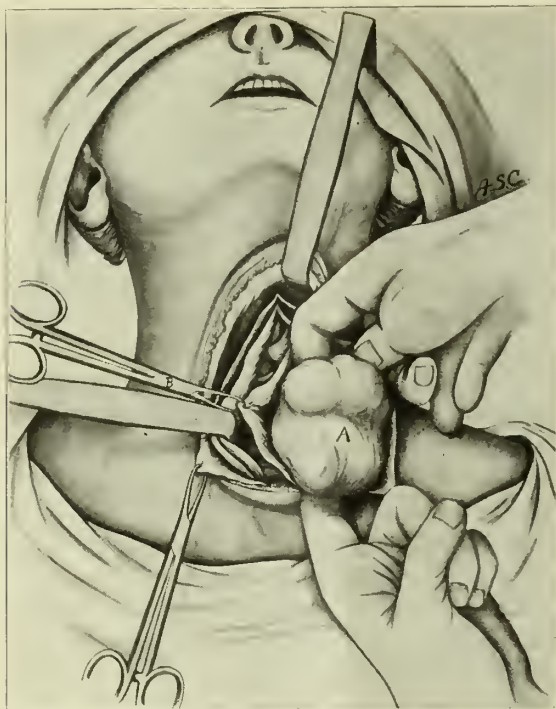


Fig. 8. The Thyroid Gland Being Lifted Out With the Forefinger. A, Thyroid Gland. B, True Capsule.

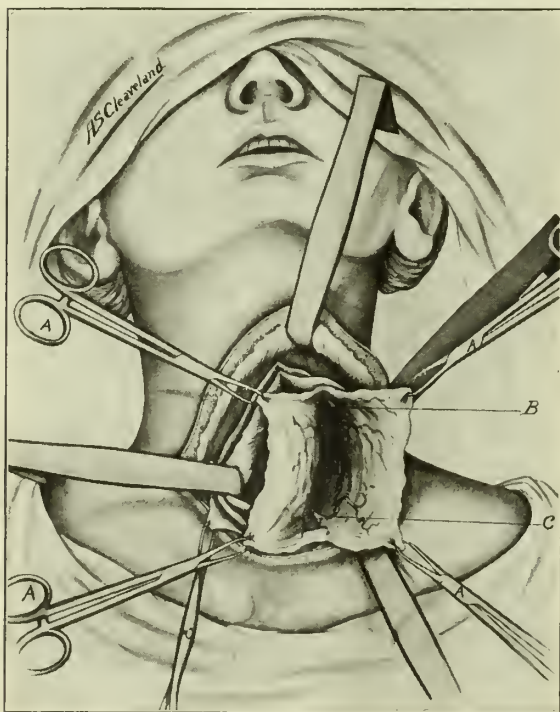


Fig. 9. The Gland Removed, Leaving the True Capsule With Its Vessels, Superior and Inferior Arteries Intact. AAAA, Retracting the True Capsule. B, Superior Thyroid Artery. C, Inferior Thyroid Artery.

oftentimes, as may be observed (Fig. 9), it would be extremely difficult, in fact, almost impossible, so to place the instrument as not to endanger the recurrent nerve. Yet, if we consider the number of clamps frequently observed in use during the thyroid operations, from twenty to the astounding number of two hundred and forty, having come frequently to the notice of the author, the occasional rather than routine appearance of recurrent nerve paralysis or irritation is well nigh inexplicable. Moreover, force impressed upon this nerve is known to cause distinct shock.

In ninety-eight thyroidectomies in which the above technique was followed, we found the application of clamps to the inferior thyroid artery to be necessary in two cases, but, being inside the capsule, no injury to the nerve was possible; necessity for clamping the superior thyroid artery has never arisen.

Infection, the most important complication of these procedures, is rendered materially more likely when reduction in reactive power of the tissues is caused by instrumental traumatization.

Air embolism and post-operative hematoma formation cease to be important factors when, in the absence of definite contraindications, the above technique is applied.

25 East Washington Street.

THYROID ENLARGEMENTS.*

STEPHEN C. BRADLEY, M. D.
MARSHALL, ILL.

1. *Thyroiditis.* Inflammation of the thyroid gland may be general or confined to one lobe. It may follow a general infection, such as typhoid, or may occur independently. The inflammation may subside, leaving no visible after effects, or may go on to suppuration. Thyroiditis is so rare in this locality that I shall leave it, with the report of one case.

In this case an acute inflammation developed in a simple goiter of many years standing. There was a very marked acute enlargement of the entire gland, accompanied by fever, tenderness and finally distinct fluctuation over the whole gland. On incision, a large quantity of pus escaped and drainage continued for several weeks, with complete disappearance of the goiter.

*Read before the Clark County Medical Society, Feb. 10, 1916.

2. *Tumors.* Tumors of the thyroid, other than the forms of goiter, are usually malignant. Last year I reported a case of carcinoma of the thyroid, in which the diagnosis was easy, as the patient expectorated bits of tissue which under the microscope showed the epithelial cells of the alveoli to be growing in typical cancer formation. The patient died from an inhalation pneumonia.

3. *Goiter.* The commonest and, therefore, most important enlargement of the thyroid is goiter. Several types are recognized pathologically. Hyperemic goiter, a hyperemic condition of the blood vessels of the gland, may be brought on by severe strain, as in singing, playing a wind instrument in a band or during the severe strain of childbirth. Hyperemic goiter is cured by rest.

The usual type of goiter, sometimes called hyperplastic goiter, is produced by enlargement of the old alveoli and development of new ones. The hyperplasia may be diffuse, but is usually limited to circumscribed lobules, enlargement of the left lobe and isthmus being more frequently seen in our office than general enlargement or enlargement of the right lobe.

Frequently in girls and occasionally in boys, goiters develop at puberty. This emphasizes the connection between the various organs of internal secretion, which must be borne in mind in treating these cases. The principal external factor credited with causing goiter is an ultramicroscopic organism sometimes found in drinking water. Boiling kills it and, judging from the number of cases we see, much of the water in Clark county would stand boiling.

Diagnosis in goiter is usually made by the patient and presents no difficulty.

Treatment of goiter is generally satisfactory. Personally I have never seen any benefit from administering thyroid extract, but I believe there are cases in which it will give good results. When the gland enlarges, it must be in response to a chemical stimulus demanding an increased secretion; hence to supply that demand by giving thyroid extract would relieve the gland and stops its growth. This is theoretically good, but clinically I have obtained better results by giving various forms of iodine, by mouth and by inunction. Tincture of iodine painted on the neck, produces a nice dermatitis, but has very little effect on the goiter, because so little of it is

absorbed. The U. S. P. iodine ointment is much better, but must be used fresh. Iodopetrogen, "made in America," is still better and I have obtained excellent results from iodide of mercury ointment. Sodium iodide in a weak solution, increasing its strength if no symptoms of iodism develop, is the most useful internal remedy.

4. *Exophthalmic Goiter.* The cause of exophthalmic goiter is still obscure, though several theories advanced seem to have good proof in a limited number of cases. To summarize all of them, there is a close connection between the various organs of internal secretion, the sympathetic nervous system and the central nervous system. A derangement anywhere in this chain may be responsible for exophthalmic goiter and any break in the circle may cure it.

We see several cases of exophthalmic goiter every year, nearly all of them very mild or beginning cases. The diagnosis is very easily made or very easily overlooked in this stage. The four cardinal symptoms form such a plain picture that no case will be overlooked if the doctor will keep it in mind when examining his nervous cases: 1. Usually moderate or very slight, enlargement of the thyroid; 2. rapid heart; 3. nervous tremor, and 4. staring eyes—this combination spells exophthalmic goiter. In addition, in the more advanced cases we can find the increased palpebral fissure (Stellwag's sign) failure of the upper lid to follow the eyeball when turned downward (von Graefe's sign), inability to focus the eyes together at short range (Moebius' sign), the unwrinkled forehead when asked to glance upward (Joffrey's sign), sometimes a capillary and even a venous pulse, and overacting heart with loud sounds, a murmur over the thyroid, a marked nervous condition. The goiter may be absent, but none of the other four chief symptoms will be lacking. The heart may show a rate of only 80 or 90, or it may be 160 or more. The tremor is fine and regular, most easily observed in the fingers and especially in the tongue. The exophthalmos may be so slight in early cases that it would be missed unless one is looking for it.

As to treatment, many things have been recommended and most of them have some good results to their credit. This agrees with my previous statement that a break anywhere in the chain of organs associated with the thyroid may

effect a cure. For instance, I have treated cases where the cure seemed to be due to giving corpus luteum extract, while in one case I feel sure the cure was due to thyroid extract. Rest is one of our most valuable aids in treatment, but much tact must be used in dealing with this nervous class of patients, and care must be used in prescribing rest. Absolute rest in bed may be needed in a few instances, but often these patients are so nervous and restless that varying degrees of exercise must be allowed if they are to do well.

Diet seldom requires much attention except in a general way.

The medical treatment, as suggested before, may follow the teachings of any of the leaders in Graves' disease research and many cases will be cured, but the most generally accepted medicines are quinine and ergotin, the former in five-grain doses, the latter in doses of one grain, repeated two to four times a day. Elimination should be kept good, sodium phosphate having been credited with many cures, although probably its only effect was to increase elimination. Other treatment need be directed only to symptoms as they arise.

Electrical treatment helps some cases and I have seen one young man cured by the use of the x-ray.

If a case is not improved by six months' medical treatment it still is not hopeless, for surgery can relieve nearly all the cases that medicine fails to cure. In the hands of surgeons with a large experience in goiter work the mortality has been reduced to less than five per cent. Removal of part of the gland is all that is necessary in most cases to cause a recession of the symptoms.

The outlook, therefore, for a victim of any of the diseases mentioned in this paper is really bright, only provided that his physician is wide awake and discovers his trouble early.

HYDROTHERAPY.

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Excessive medication and blood letting, characterizing the practice of medicine in the early part of the 19th century, gave way to therapeutic conservatism.

Prevention rather than cure, and the aiding of nature by simple and natural methods is the rationale of the practitioner of today.

More and more we are realizing that the best any physician can do is to put his patient in a position where nature can heal. Hence, we find that we are using less and less of drugs and substituting for them more rational remedies. Among the treatments which have largely taken the place of drugs, with the medical practitioner, is hydrotherapy, or the treatment of disease by water. This form of treatment has been employed for thousands of years. In fact, it is the only valuable therapeutic measure that has survived the ages and is now coming into its own, because of the unquestioned results obtained for the betterment of suffering humanity.

History—Before the human was, there was water treatment. The first vibration of cell life, from which we directly came, was, so far as we know, an hydrotherapy.

Later from the Bible we learn that Elijah prescribed a bath cure for Naaman, the leper.

In 300 B. C. there was hydrotherapy; in the beginning of the Christian Era, Christ prescribed water treatments. Hippocrates employed water treatments for many kinds of disease. Horace spoke of Musa, the hydropathic physician of Augustus. Celsus and Galen wrote favorably of the water cure, particularly in acute diseases, such as fevers.

In the middle ages it was advocated by many physicians, all of them favoring it for acute rather than chronic ailments.

In the pages of Latin writers we frequently meet with allusions to medicinal springs, testifying to the esteem in which they were held by the Romans.

When the capital of the Roman empire was removed to the East the well-known baths of Bruse, about sixty miles from Constantinople, were developed, and at this day they are the most celebrated baths in the Orient.

In Switzerland, in 1420, at Baden, there were two public and about twenty-eight private baths, attached to the hotels. Some 200 years later, in 1648, we have a description of life at Bath, England, by the quaint court gossip, Pepys.

About the beginning of the 18th century Sir John Floyer and Dr. Baynard made a large use of water; and one of the best and most scien-

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tific works of early medical books is Dr. Currie's, in 1797, "Medical reports on effects of water, cold and warm."

So up to the beginning of the 19th century, water was used by some in acute, others in chronic diseases; by some, as an internal agent; by others as an external application in various forms, but never in all combinations.

This was first begun by Priesnitz, a Silesian farmer, who began a new era in water cure. This was due to his treating himself by cold water in accidents. He began in this way, then realizing its benefit he treated the poor people in his neighborhood. Then extended his range of treatments, increased modalities, used wet compresses, douche, sweating, wet sheet, together with much drinking of pure water.

In addition to water in these forms, he insisted on the value of exercise, fresh air and mental repose in the cure of diseases—thus establishing a new system of medical treatment.

At Grafenberg, up to 1841, for twenty years he treated 7,500 cases with but 39 deaths.

Priesnitz was not a physician, so was unable to fully understand and explain his treatments. Afterward, men of standing in medicine, realizing the benefits of hydrotherapy, explained it scientifically. From them has arisen the school of hydrotherapy.

Dr. Winternitz, in 1883, made clear its scientific value. When the introduction of antitoxic therapeutics threatened the disparagement of hydrotherapy, Dr. Winternitz, fortified by his biological, physiological and therapeutic learning, clearly set forth this scientific truth, that, while water possessed no antitoxic feature, it aided nature in its battle against the manifestation of toxemia by improving cardiac action, vivifying the nervous system and furthering the oxidation and elimination of toxic products, thus establishing more firmly than ever the scientific basis of hydrotherapy.

This opinion of the most judicious, philosophical and successful physicians of past ages, has been sustained by the judgment of this enlightened era.

Hydrotherapy is the most orthodox therapeutics in medicine.

Rationale—The chief, but not by any means, all of the effects of hydrotherapy concern the

thermic and mechanical action of water upon the cutaneous surfaces of the body.

In connection with hydrotherapy it is only necessary to study briefly the anatomical structure of the skin for purposes of furthering a correct understanding of its functions. Those portions of the skin which contain the blood and nerve supplies will, therefore, interest us most. Their distribution over enormous areas and their interdependence, direct and indirect, with almost every organ in the human body, lend to the subject of the nerves and blood vessels of the skin paramount importance to the student of hydrotherapy.

This anatomical construction, by reason of which the cutaneous muscles are surrounded in their entire extent by a woof of elastic fibres which are connected with each other and with the tendinous formations existing in the skin, renders it plain that a shortening or tension of the muscular fibres always simultaneously contracts the elastic apparatus which is woven around their entire extent. This explains the vital import of the contractility of the skin when exerted upon the small blood-vessels contained in it. Inasmuch as the condition of tension of the skin may thus be readily varied in the most direct manner by reason of the universal presence of the elastic fibres, inasmuch as muscular coats are either absent in the vessels of the skin or are feebly developed, these structures really perform the function of an inhibitory apparatus which distributes uniformly pressure and motion, and enables the oblique muscular fibres which are embedded in the skin to regulate the secretion and circulation, the movement of lymph, and consequently the nutrition.

The papillæ contained in the upper layer of the cutis show fine capillary loops, or blood-vessels, which rise perpendicularly to the near vicinity of the epidermis. Smooth muscle is capable of irritation and contracts or expands under it. Peripheral nerves irritated cause the muscles about the capillaries which have no muscular coat to contract or expand.

Cold water applied to the skin irritates these nerves, which acting on the muscles about the capillaries cause them to contract and drive the blood toward the center, and then if the proper application has been made for the reaction, there is a return flow which sends the blood not

only back to the surface (as is shown by a glow), but to all the organs of the body. Then the white corpuscles floating about the shore of the current in the arteries are brought into the general circulation. The result is a large increase in white, and an increase, but in a lesser degree, of red corpuscles.

The nerves in general are not only thus stimulated, but the trophic centers as well. Then, too, the functions of the secretory and excretory glands are enhanced and the toxic material eliminated. Prolonged application of cold water does not bring about such a change, and if too prolonged, the parts affected die.

Hot applications relax muscular tissue, and so the capillaries (and then the reaction is a vis-a-tergo), and there is relaxation, depression; if too prolonged application, weakness, exhaustion, death. In this action and reaction the respiration is affected. Apply a sudden dash of cold water, respiration is deep—a gasp. The pulse, too, is slowed.

Water readily takes up heat and gives it off, so it is a valuable and variable thermal agent. It may be used in liquid, gas (steam) and solid (ice). The action of heat and cold are essential. Smooth fibre muscles expand under the action of moderate heat and contract under cold. Its contracting power may be destroyed by excess of either.

Cold and heat, therefore, act as irritants to the nervous system, and through the nerves all the organs may be acted upon to stimulate or depress their activities. The heart, lungs, liver, spleen, skin, etc., may all be influenced. The temperature and output of moisture and secretion may be regulated.

Thus by the use of heat and cold to certain portions of the skin, almost every organ in the body may be influenced through its blood vessels, and a skillful physician, who knows by scientific means of diagnosis, can by guiding and directing these effects, bring about changes in vascular states; can remove excess of blood from one part of the body to the other; can give tone to a weak heart, or to the muscles of the spinal cord; can increase the secretion from organs, such as the kidneys, etc., and so aid excretion of toxic material from the body.

We are learning many lessons from the great conflict abroad. One only concerns us right here

and now. Away back in the primordial ocean the individual cell inherited or copied his ancestor. Down through the ages since, the cell and the individual has imitated or followed the one before him—changed, developed and modified, it is true; the habit or mad rush to be with and like society or royalty at “The Cure” abroad being but one manifestation of this craze.

This is no criticism of the Spa, per se, abroad. Europe has wonderful cures. England, Germany, Italy, Austria and France are renowned for their hydrotherapy. Priesnitz, Floyer, Winternitz, Savanarolla, the Schotts, Charcot and Baruch are shining lights thrown all the way of the water cure.

It has been the mistake of our profession to imagine that hydrotherapy is not available in this country. Scattered throughout our land are healing springs, embracing every variety of water that is known in any country. These are hot or cold; sulphur or saline, and frequently charged with carbonic acid gas, in fact, every variety of water that is needful for “The Cure” as given abroad.

The trouble has not been in the lack of material, for “The Cure,” but in the lack of knowledge of its application. This is now remedied, and establishments like Saratoga Springs, Hot Springs in Virginia and Arkansas, White Sulphur Springs in West Virginia, Hotel Chamberlin at old Point Comfort; the establishments at Battle Creek, Colorado Springs and the Hot Springs of Paso Robles, California, among others, are supplying the profession with up-to-date methods of applying material furnished by nature.

There are nowhere else in the world springs or cures more effective in remedial conditions, better equipped with scientific apparatus, more complete with comfortable accommodations, more interesting in environment, or better provided with skillful, ethical, conscientious physicians, than right here at home. There is, I repeat, no place in all the world so equipped for and suited to the proper care and treatment of Americans as “The Cure” made in America.

There are many reasons why you should not go abroad yourself or send patients, this year or any year.

The first consideration should be the fact that the American Cure is owned and operated by

American capital, managed by American brains, and that an American physician is in charge. Patriotism alone should impel you to give the American Cure every consideration. The convenience of the home place is another element; the question of time and money is always to be considered. Frequently it is at great sacrifice of both of these that people are sent abroad to take treatments. There is no reason for this. A course of baths can be taken in the time your patient would consume going and returning from the other side. Care should be taken to select a place which is accurately and scientifically administered, and one in which there is no co-operation between the physician in charge and the doctor at home. It frequently happens that after having made a careful diagnosis of a chronic case and treating it for some time, the physician at home finds that the results both to himself and his patient are not what either could wish. If he has investigated and knows "The Cure" that will meet the requirements of this case, the matter is simplified. If he has not investigated the advantages or disadvantages of different cures it is largely a matter of experiment where he sends his patient. This should not be. The doctor should know the conditions surrounding each "Cure" place, so that he may be quite sure he recommends the one suited to the needs of his patient. I would earnestly recommend that when sending people to a "Cure" your findings and suggestions be sent to the house physician. Naturally, he will make a careful examination of the physical condition of the patient, the blood tests will be taken, urine analysis made and other means of ascertaining what treatment should be given.

In a well regulated establishment the findings of the medical director are sent to you, with a complete schedule of what is possible to be done with your patient. At regular intervals reports are made to you, showing the progress made in the case. If necessary, you will be called in for consultation as often as courtesy and wisdom direct. Thus, there is perfect co-operation between you and the physician at "The Cure," and, whether the patient is benefited or cured, he returns home with gratitude and confidence in the doctor at the springs and renewed confidence and everlasting gratitude to his home physician.

So, the home doctor keeps his patient and secures his patient's friends.

It is just as important for you to recommend a good cure place where your patients will receive proper care, as it is to give correct medicine of any kind. Frequently, in sending patients abroad, they are completely taken out of touch with the home physician, and the foreign doctor, naturally, having no sympathy and thought for the doctor at home, will consciously or unconsciously lessen the confidence the patient has in his own physician.

I wish to emphasize right here, that the mere application of water is not "The Cure," it is a complex, not water treatment per se. "The Cure" means not only the treatments described, but as well regulation of diet, change of mental conditions, drinking of mineral water—all these go to make up the completed cure.

The diet—The patient needs different food. Those in the interior should go to the seashore for sea food, and vice versa. Pure food in every detail without a suspicion of impurity, carefully prescribed and intelligently supervised. Again, an essential part of the cure is a change of mental state. The tired body needs a new and interesting environment. The tired thought centers and the resultant weary motor action needs renewing in a place not exciting but relaxing and restful. A new field where instead of trying to force away a tired thought a new one is substituted, so indirectly removing the old one.

The whole effect of treatments is emphasized by the mental attitude of the patient in the new environment. Our friend is taken out of himself, sees something different, hears something different and is prepared by this new condition to receive the benefits which the actual treatment will give.

Therefore it behooves us in sending our patients to take treatments to be sure that the new environment is attractive and interesting. The great cure places abroad especially emphasize this. We find the natural beauty and attractiveness of the country in which the Kur places are situated augmented by walks, attractive Kur houses, band music and everything to divert and distract the stranger, and all of these have a distinct therapeutic value.

The necessity for mental change is shown in

the fact that never have establishments giving even the most completed hydrotherapeutic treatments been successful in large centers; they failed to accomplish their mission because the patient was not put into a receptive state of mind by a change of environment.

It is also the *rest*, natural and naturally aided rest, that is prescribed rest. A very important part of "The Cure" is *proper exercise*. Not work but exercise by play, where possible, and all intelligently prescribed and supervised.

It is necessary, too, that there should be a rigid daily program (leaving no time to worry) suited to individual needs.

Last but not least, suggestion, by letting the patient know that you have thoroughly and scientifically examined him, and so corroborated his home physician's diagnosis, thereby gaining the patient's confidence. Then state to him decidedly, but honestly, a favorable prognosis, and, if possible, definite assurance of cure. Repeat this daily until he is so far advanced toward recovery that he not only knows that you are sincere, but until he knows what you say is true.

NAUHEIM BATH.

There are in hydrotherapy, I believe, about three hundred kinds of treatments. The Nauheim system is probably the best known of all. When the Drs. Schott developed this treatment abroad they rendered to the world an untold blessing.

At "The Cure" this bath is given with filtered sea-water, carbonated by a specially constructed apparatus. The technique of this and other systems, the Aix, the Vichy, the Chamberlin, etc., will be explained.

Rationale—Applications of cold or cool water to the body surface, rendered more stimulating, first, by the addition of considerable quantities of salts, chiefly such as will be found in sea-water; second, in the later stages by the introduction of that unrivalled stimulant to involuntary unstriated muscular fibre—carbonic acid. So marked is the effect of this skin tonic that, in severe cases of dilation, the almost incredible result is attained of causing the apex actually to retract three-quarters of an inch towards its normal position in a single treatment. Not only are the pulsations of the heart greatly lowered in frequency, but they are apparently increased proportionately in power, so that the work which was

previously altogether too much for it is performed with comparative ease and comfort. In fact, the results obtained from this simple remedy sound almost too good to be true, and would hardly be believed if the repeated experience of competent clinicians did not almost unanimously verify them.

Experience with the Nauheim treatments has shown the baths to exert a beneficial effect, in various ways, in cardiac insufficiency. The most prominent among the results are:

To produce a more vigorous systole with diminution in the size of the heart and a reduction of the pulse rate.

Blood pressure is at first raised.

Respirations are deepened and slowed.

The skin is flushed and a glowing sense of warmth is felt, due to the increase in the carrying power of the peripheral vessels.

The effect upon the nervous system is sedative. A large proportion of patients sleep after the treatment and the remainder feel drowsy or, at least, quieted.

Because of the marked systemic effect of this treatment it is of great therapeutic value in a comparatively wide range of morbid conditions due to disturbances of the circulatory and nervous systems, as follows:

All classes of heart invalids have been found to be materially improved by restoration of compensation due to this treatment. The impaired nutrition of the myocardium is benefited by the freer coronary circulation. The labor of the overburdened heart is greatly diminished and its recuperation assisted. The influence on the blood paths is such as to accomplish an arteric dilation and a transfer of the abnormal amount of venous blood to the arterial side of circulation. Many heart invalids are enabled to lead lives of usefulness and happiness by an annual resort to the Nauheim treatment.

Patients suffering with angina pectoris have derived relief from the distressing symptoms.

Gout is counteracted by the effect of the treatment on the underlying derangements of metabolism.

Anemia and neurasthenia are cured by the improvement in the circulation and the oxygen absorbing power of the blood.

Paralyses of the peripheral variety, rheumatic or other exhausting diseases, are helped by the

stimulating effect of the treatment on the peripheral nerves.

Diseases of the spinal cord are improved or cured, because by means of the baths it is possible to exert a reflex influence upon the cord and thereby, to a certain degree, improve its circulatory and nutritive conditions.

Prof. Erb of Heidelberg says: "Patients having locomotor ataxia receive much benefit from the treatments. The pains are relieved, the gait improved and the progress of the disease is arrested in many cases." I have seen improvement in several cases. One, treated both by Prof. Erb and myself showed marked improvement.

Painful diseases peculiar to women are improved or cured when due to inflammatory exudates or congestive conditions.

That the nerve centers are brought under powerful influence is attested by the remarkable trophic changes which may be observed to follow the course of these baths, in cases of anemia, wasting, neurasthenia, and above all, trophic and probably other central nerve tissues. This is so lasting that progressive improvement may be observed for three or four months after the completion of the course. It need hardly be pointed out that such a process of general health restoration is a factor of great importance in cases in which the condition of the heart presents the main indication for treatment.

Dr. Schott's system of "Resistance Movements" or "Heart Gymnastics," consists of a systematic series of movements made by the patient as he is directed; each movement is gently resisted by the attendant, not to prevent the movement, but so as to produce a sensation of moderate resistance.

The object of the exercises is to throw into activity different groups of muscles, more especially those of the extremities, "in orderly succession without inducing fatigue." Their principal therapeutic effect is over the cardiac vascular system.

The resistance movements stimulate the peripheral motor nerves, while the baths act on the sensory nerve filaments. They exert a tonic effect on the myocardium and also tend to drive the venous blood to the right side of the heart by compression of the veins.

The action of the exercises is similar to that of the baths. The extremities become warm,

breathing is freer and deeper, and the pulse is slower and stronger.

Technique—The bath consists of filtered sea, or salt water, carbonated to different degrees and usually given in a series. For example, each series consists of four baths, always bearing in mind the individual requirements. In the first series, we begin, perhaps with an ordinary tub filled with filtered sea, or salt water, and carbonated to the first degree. This should be given three or four hours after meals. (The diet I will describe later.) Temperature 98 degrees or as the case demands. Prescription read and pulse taken before and after baths. The time of this bath from seven to ten minutes. Patient lies quietly in tub. His pulse and general condition carefully watched. Then he is removed slowly, dried and wrapped in a blanket and lies down quietly in a rest-room *close to the bath*. This is a very important part of the treatment. In many places, here and abroad, the patient is allowed to walk to his hotel, or go some distance; this exercise often counteracting the good effects of the treatment. The next bath should usually be given on alternate days, temperature lowered one or two degrees, the time extended to ten minutes, the degree of carbonation perhaps the same.

I wish to emphasize the importance in many cases of giving the baths on *alternate* days, instead of two or three days in succession, then omitting one day. This may be all right for the European, but for the American better results are obtained by using it on alternate days. The succeeding baths of the first series are given in a similar way, but at a lower temperature, as a rule, and the time limited to 12 minutes, as the individual needs. Then the second and third series are given, at a still lower temperature and with increased carbonation, in a series of four or more as required. The temperature seldom lower than 80° F.

THE AIX AND VICHY SYSTEMS.

So long as the cold bath shall be regarded as a temperature reducing agent and be applied without friction its effect will be disappointing. Chafing of the skin during the bath stimulates by mechanical excitation the sensory terminals as well as the muscular structures surrounding the cutaneous vessels, whose response is made evident by hyperemia of the skin. The chilling effect of continuous cold is thus neutralized and the bath

may be given longer and colder without depression.

Technique—These two systems are somewhat similar in character and equally alike in intent and purpose. The Aix cure consists principally of both local and general douche-massage. The treatment is completed in accordance with the individual requirements by the aid of sweating cabinets and local vapor baths.

This douche-massage is given by one or two masseurs; the pressure of the douche, as well as its thermic quality, is regulated by the physician's prescription to meet the requirements of individual cases, as, also, is the length of time for taking the bath. By the Aix method single joints or circumscribed areas of the body can be played upon by the vertical jet and massage subsequently administered.

In the Vichy arrangement the patient is stretched at full length upon a canvas bed, and the entire body is subjected to large and continuous douches of hot water, while at the same time the whole body is vigorously massaged. After the treatment by either the Aix or Vichy Bath, the patient is sprayed to the point of reaction, dried and wrapped up in a flannel blanket for free perspiration as prescribed.

THE IONIC SYSTEM.

Cataphoresis and ionisation are now universally included under the one heading of ionic medication. This treatment consists in taking advantage of a property peculiar to the galvanic or constant current of conveying a medicine directly through the unbroken skin to that part of the body to be treated.

The galvanic current dissociates drugs into ions and these ions travel always to that pole opposite to their own charge, thus, negatively charged ions travel to the positive pole and positively charged ions to the negative pole. In this manner it is possible to administer a medicine directly to the actual seat of a complaint through the unbroken skin, even into the deeper parts, and with the important advantage that the ions must enter every cell through which the current passes. The effect of a medicine so administered is far more beneficial than when introduced by hypodermic injections or other methods, and this is explained by reason that the ions have a greater activity owing to their electric charge and to the

fact that they are distributed through each cell through which the current circulates and are not so easily carried away by the blood.

THE CHAMBERLIN SYSTEM.

The principal feature involved in this treatment is the use of sea water, and a certain amount of friction and massage.

Here the spout, or continuous baths of sea water at a proper temperature is used, and for persons who cannot stand the shock of the more violent treatments, the massage baths of sea water and the plain salt tub baths are particularly grateful.

There is then a marked advantage in certain definite cases involving the effect upon the skin, nerve terminals and circulation, of certain mineral constituents in sea water, such as is used in the Chamberlin system. The effects of sea water advance beyond the thermic and mechanical irritation of plain water in possessing all of its good qualities and in addition certain others due to the salts, etc., held in solution.

Sea water has a specific gravity of 1.027 and contains 3.5 per cent. of salts, mainly sodium chlorid, magnesium chlorid, potassium sulphate, magnesium sulphate, calcium sulphate, magnesium bromid and small amounts of iodine and bromine and carbon dioxide in solution.

This combination has a decided stimulating effect upon the skin and nerve terminals, and excites reaction, and this enables the patient to tolerate the baths at a temperature two or three degrees lower than when fresh water is used, thus increasing both the tonic and derivative effects of the baths.

The attention of the scientific world has of late been called in a very striking manner to the curative properties of sea-water. Scientific interest has been aroused largely by Prof. Quinlan of College de France, who delivered a lecture in London on Isotonic sea-water, or, "Plasma-marin." Prof. Quinlan is a well-known man of science, who has specialized in biology and physiology, and has conducted some important experiments on the origin of life. He has succeeded in tracing the earlier forms of life to living beings in the primordial ocean.

The proportion of salts in the primordial ocean he found to be 0.08 per cent. throughout. Now it is well known that the proportion of salts in the animal tissues and serums is precisely this

amount. Hence, there is a blood relationship between the two.

This would point to the fact that we originated in the ocean depths (and Prof. Quinlan from such facts formulated his doctrine of "marine constancy"). Because of these facts he was led to believe in the value of isotonia plasena, which he obtained in the following way:

Pure sea-water was collected, which was free from contamination. This water is more saline than in prehistoric days. The water is then rendered isotonic; the plasma is the result. (The water is injected between the muscles in the lower part of the back). Freedom from pain is almost instantaneous.

Now that same principle of life vibration, ebb and flow, applies right here in the rationale. Surface circulation should ebb and flow in a rhythm with the central circulation.

In the Chamberlin system, the patient is prepared, that is, gotten into the best possible condition to bring about this reaction.

The average temperature of the nude skin is in the neighborhood of 90 degrees F. The difference between the skin and water temperature being the chief element in determining the reaction of the patient, it is evident that a water temperature near 90 degrees F. would be neutral or indifferent, while a water temperature considerably below 90 would become a decided thermic excitant, with proportionate reaction. Hence, it is frequently necessary in chronic cases to elevate the cutaneous temperature (cabinet baths) in order to increase the temperature difference between the skin and water.

There are three varieties of cabinet baths: hot air, steam and electric light. Each is radically different in effect. The electric light bath differs from the other two in the fact that the heat from the electric light is carried more deeply into the body. For this reason electric light bath at a temperature of 100 will produce practically the same results as a steam bath at a temperature of 118, or a hot bath at a temperature of 140.

The douche in some form follows the cabinet treatment. The locality and extent of the part thus treated influences general reaction not only clinically, but also physiologically. Goldscheider has experimentally confirmed what Charcot and others have long ago acted upon clinically, viz.:

that certain parts of the body possess a finer sense for cold than others; e. g., while the back displays a very intense susceptibility to cold, the vicinity of the spinal region is decidedly less sensitive (Charcotdouche). Moreover, those parts of the cutaneous surface which have a better vascular supply offer a better response to cold (reaction).

Many times the shock of the douche, which we have mentioned, is too great for certain cases, and, yet, it is necessary for them to get a continued friction of the sea-water. For cases like these a continuous, or flowing, bath is used.

The patient is immersed in the tub and the filtered sea-water, at the fixed temperature, is allowed to flow in continuously, thus causing a gentle friction, which, in many instances, is soothing and stimulating.

MASSAGE.

While the practice of massage began long after water treatment, it has accompanied it as a valuable aid down through the ages. Some of the best advocates and expounders of this treatment are Ling, Meltzer, Sargent and Zander.

There are today really three types of massage. That used scientifically in connection with drugs or physical therapeutics, as exercise, hydrotherapy and electricity; that used in the school of osteopathy, which virtually massages and moves joints for the action on nerve centers, and that of the unfavorably known of the charlatan.

Slow and gentle stroking in a centripetal direction is called *effleurage*; deep rubbing is *massage à friction*; deep manipulation without friction is *petrissage*, and percussion or *tapotement*.

Rationale—Massage stimulates the circulatory and lymphatic systems, improves respiration, stimulates excretion and secretion, relaxes over-contracted parts, and contracts relaxed parts. It aids in interchange of oxygen and CO₂. It causes generation of heat. Mild massage eliminates heat; deep massage increases heat productions. It enhances vasomotor stimulation and aids metabolism and so increases nutrition.

ELECTRICITY.

High frequency currents used in so-called auto-conduction and auto-condensation are now attracting world-wide medical attention. In their applications exceedingly high vibrations are set up in the tissues, and the therapeutic results are

due to a conversion of electrical into thermal and other forms of energy. The clinical effect of radiant light proves itself powerful as an eliminating agent and as a corrector of neurotic, nutrient and capillary disturbances. Radiant energy has two marked actions on the skin and tissues—one of stimulation and the other of sedation.

Electric lamps that possess the actinic and heat rays are powerfully stimulating and penetrating, producing dilation and penetrating the tissues, and act as a stimulant in a most gratifying manner.

The vibrations of the blue, red, orange and ultra-violet rays possess great germicidal power, and are suited to many peculiar forms of treatment.

High frequency currents and those of high potential are produced by the static machine, as well as by induction coils.

High frequency currents produce no sensory effects between the poles.

Oscillatory currents produce muscular contraction.

High frequency currents produce inhibitory effects such as anesthesia, lower arterial tension, etc. These currents are bactericidal. They eliminate toxic material, increase the number and depth of respiration, increase heat production, enhance the activity of the sweat glands, effect vaso-motor nerves and lower blood pressure.

FINSSEN RAYS.

From the vacuum tube there is a slight radio-active effect, as the tube is energized by the high frequency current.

Hydrotherapy means not only external water treatment, but internal as well. We have already considered the value of mineral waters as used in the past, but if anything, they are more variously and generally employed at the present day.

America abounds in medicinal springs, each having its peculiar therapeutic value.

Drinking water has a definite influence upon the vasomotors, pulse rate, respiration, the excretory and secretory glands.

Many of these waters are valuable in chronic catarrhal conditions of the various membranes.

The results are so varied, in their effect for good or ill, that the kind of water, the quantity, temperature and the time for drinking it should be carefully prescribed.

You will notice in the analysis of the Chamberlain spring water that it is mildly aperient and radio-active.

The recent discovery that mineral waters as they come naturally from the earth are radio-active, has aroused the idea that each, if not all of the value of these waters consist of radio-active properties. It has been supposed that these waters absorb radium emanations in the depths of the earth. Radio-activity is permanent if the water contains the radium element; if only the emanations, it is transient.

Sea bathing for pleasure, cleanliness and exercise and consciously or unconsciously, as a therapeutic measure, has been used from time immemorial.

Swimming is, of course, Nature's best way of securing a bath and the active exercise strengthens the circulation. Many years of experience in different parts of the world has resulted in definite knowledge of the therapeutic value of sea-water bathing. Under proper supervision and on the advice of the physician great benefits are received.

Season and climate prevent one from obtaining such treatment when desired. At the Chamberlain an ocean bath of pure filtered sea-water, at the proper temperature, is available at all times during the year.

DISCUSSION.

DR. WILLIAM S. SADLER said that several years ago, when he became possessed with the idea that he would like to use hydrotherapy in private practice, he was slow to believe that the Nauheim bath in cardiovascular diseases was adapted to the ambulatory patient; but with more diversified procedures he has become convinced that we are overlooking a great aid to our cardiovascular patients who cannot go to institutions to take the cure. If patients can rest from two to three hours following a bath, it is surprising what can be done for them, but if they have to go to and from baths in a car or street car, when they have been at home, the results of hydrotherapy are not so good. He believes the artistic combination of cold and hot baths is scientific and will accomplish great good and will help the doctor in using hydrotherapy. Every application of heat and cold is accompanied by action and reaction. Sometimes exactly the opposite may obtain, but with oscillation of the two we may get beneficial therapeutic effects. He believes the time has come when we cannot only carry out the "cure" as well in this country as abroad, but that we must also have the "cure" in our own homes, and that even the ambulatory patient may derive great benefit from cardiovascular gymnastics.

HEREDITY AND EVOLUTION.*

C. L. REDFIELD,

CHICAGO.

To acquire means to obtain by effort, by exertion, by the performance of work. Hence, an acquired character is a dynamic development of an organ obtained by exercising it. A mutilation is not so obtained and consequently is not an acquired character.

If an acquired development is to be inherited, the parent must make the acquirement first and get the offspring afterwards, not get the offspring first and make the acquirement afterwards. As the intellectual development of a human being is the result of many years of intellectual work, it follows that, if such acquirements are inherited, men born with exceptional mental powers should be the sons of mature and well-developed parents, who were the children of mature and well-developed grandparents, and these in turn the children of mature and well developed great-grandparents.

This is precisely what the pedigrees of intellectually great men show. They, their parents and their grand-parents were children of fathers averaging some 40 years of age at the times when their children in these pedigrees were born. As an average for a considerable number of births this is altogether exceptional—the normal average being about 32 years for fathers when sons are born.

As a reply to the charge that selected cases have been used to bolster up a non-meritorious theory, a money challenge has been standing for two years with the American Genetic Association for any one who can show a single case of a man of very great intellectual power who was produced by breeding which was as rapid as three generations to the century. As about two-thirds of all the people of the world are produced by breeding which is more rapid than three generations to the century, it is very significant that no very great man can be found produced in that way.

They tell us that man and the other higher animals have evolved from lower forms of animals by selection, but those who make that statement overlook a very obvious absurdity in their claim. To have selection, parents must have offspring, and to have more selection the offspring must produce another generation, and these in turn an-

other. Each generation gives opportunity for selection, and the more generations the more selection. Anything which would reduce the number of generations in a given period of time would reduce the opportunities for selection to accomplish anything.

At some time in the past there was a common ancestor for man and the higher apes. As the apes breed at an earlier age than man does, it will be evident that there have been less generations, and consequently less selection, in the line leading from that common ancestor to man than in the lines leading to the apes. Further back in the past there was a common ancestor for the higher apes and the lower monkeys. There have been less generations, and consequently less selection, in the lines leading to the higher apes than in the lines leading to the lower monkeys. Carry that investigation down through the different species of active animals and it will be seen that each advance from a lower to a higher stage in evolution involves a reduction of selection, and that the most rapid improvement comes when selection is least.

Selection is not a cause of evolution from a lower to a higher stage. The real cause lies in the amount of work each generation does, on the average, before reproducing. When the amount of work per generation before reproducing increases, there is an advance; when it decreases there is degeneracy. There is a definite or standard amount of work per generation for each stage in evolution, and any change in this amount of work per generation involves a corresponding change in the evolutionary scale. When other things are equal, the time between generations accurately represents the amount of work involved.

A horse-power derived from a horse does not differ in any way from the horse-power derived from a steam engine. They are the same thing and do the same work. The result of a mathematical calculation performed by the human intelligence does not differ in any way from the result of the same calculation performed by a calculating machine driven by a steam engine. The energy which is the human intelligence, the ego, the immortal soul, is the same thing as the energy known in mechanics—and is governed by the same laws.

The first of these laws is that, while energy can

*Read before Chicago Medical Society, Feb. 2, 1916.

be put through many transformations, it can neither be created nor destroyed.

The second law is that energy, left to itself, normally dissipates, and can be concentrated or stored only by the performance of work.

We have an example of the operation of the second law in ordinary life. A man gains strength by exercise, and loses it by idleness. If the gain by exercise, physical or mental, is not carried over by heredity to the next generation, then evolution from a lower to a higher stage is nothing else than a continuous series of special creations. The Garden-of-Eden story had special creation completed in one act. The denial of the inheritance of acquirements necessarily involves the doctrine that special creation still continues, and is ever present in the reproductive process. The improvement in the American trotter during the past century involves either special creation or the inheritance of acquirements. Not otherwise can that improvement be explained.

53 West Jackson Blvd.

DISCUSSION.

DR. CHARLES J. LEWIS thought the essayist was fairly correct in his statement that children born of male parents in advanced life were better fitted in every way, providing they have the usual degree of health, than those born of young parents. Furthermore, the individual who had gone through his youth, gone through the earlier period of maturity and had gone on almost toward the period of decline, had acquired a larger amount of experience, had brought into exercise all the energies of his body, and if these were transmitted to the offspring, he could transmit a better stored organism than he could before he had acquired those things, and especially was this so with reference to the manifold exercises of the nervous system.

DR. ANNA E. BLOUNT referred to the early experimental work done by scientists with reference to heredity and evolution, and begged of the members not to accept the theory of heredity as set forth by Mr. Redfield, and throw aside all the good work that had been done by universities without further thought in the matter. Professor Wiseman did not promulgate his theory of the non-inheritance of acquired characteristics without very much experiment. The statistical method adopted by the essayist in his research work was questionable, for according to the London Eugenic Laboratories, by the statistical method biologists of universities rely very largely upon ex- alone many mistakes are liable to creep in. Scientific experimental methods.

WHY WE NEED A SYSTEM IN OUR PHYSICAL EXAMINATIONS.*

THOMAS P. FOLEY, M. D.

CHICAGO.

In one of his essays Emerson wrote "the chief difference between a wise man and an ignorant one is not that the first is acquainted with regions invisible to the second and away from common sight and interest, but that he understands the simple things which the second only sees." This remark aptly applies to physicians.

The idea advanced in this paper is to prove that errors in diagnosis depend principally on two factors; primarily, carelessness; secondarily, lack of system in examination. My proof for this assertion is in the report of cases personally examined, except the first case which is quoted from an American medical journal.

This case is briefly as follows: A woman entered a hospital complaining of a swelling in one breast. There were no glands palpable in the axilla. A frozen section from the tumor in the breast was pronounced benign—a lymphoma. She left the hospital without further treatment or examination. She returned five months later with tumors in the same breast and glands palpable in the axilla on that side. A clinical diagnosis of sarcoma was made and the breast amputated. Sections of the tumor removed were pronounced lymphosarcoma. As the opposite breast contained a tumor mass a radical operation was also done on that side. There was surgical shock after this operation. A blood count made before the death of the patient made the diagnosis. She had a lymphatic leukemia. Occurring in a good hospital this error can only be attributed to carelessness.

The second case was seen in the medical clinic at the Post-Graduate Dispensary. A colored man thirty years of age complained of pain under the left scapula. The pain had been present for four years; was practically constant but worse on exertion. On physical examination the only variation from normal was a slight dulness to the left of the sternum and above the normal heart area. There was no difference in radial blood pressure, but the x-ray revealed a large aneurism of the aorta. He had made the rounds of the dis-

*Read before the Douglas Park Branch of the Chicago Medical Society, November, 1915.

pensaries without having a complete examination made, probably due to the chronicity of his ailment, his apparent good health, and the common complaint of "pain in the back."

Another case, seen at the Post-Graduate, was that of a colored woman forty-five years old, whose cause for seeking relief was dyspnea and edema of the ankles. She had had this complaint for about one year. Physical examination of the heart was negative. The examination of single and twenty-four-hour specimens of urine indicated no disease of the kidney. At the suggestion of a visiting physician examinations of the stools were made for hookworm. These were negative. A complete examination of the blood made in the Zeit laboratory was negative. Finally a diagnosis of myxedema was made and thyroid therapy begun. The clinical result indicated that this diagnosis was correct. This woman had been treated with rest in bed and cardiac medication for heart disease without result. She had been limited to a salt free diet and given violent catharsis for nephritis. The error in this case was due more to lack of systematic examination than to carelessness.

The following is of interest because of its oddity. The police ambulance brought a woman to a large charity hospital. The ambulance surgeon said the woman had fallen unconscious while preparing the evening meal for her husband. The husband had rushed out and called a neighboring physician who made an examination and found the woman paralysed on the right side. He suggested hospital treatment and the police were called to transport her to the hospital. The woman was physically in a filthy condition.

The examining interne elicited the above history and in his examination raised the right arm which fell limp to her side. He raised the right leg and it fell back to the examining table apparently paralysed. Considering the onset and her age—fifty years—the apparent paralysis of the right side and waiving further examination because of her filthy condition, he entered her on the hospital records as "cerebral hemorrhage." She was taken to the ward, examined by the interne on service and seen by the attending physician without a change being made in the diagnosis.

Three days after, relatives visiting the patient gave the following history: She had fallen

on the floor on the night in question, but the cause of her fall had been her husband. He had come home intoxicated and taking exception to her cooking had assaulted her, picking her up bodily and throwing her on the floor. With this additional history the interne in charge of the case made a second examination and discovered a fracture of the right humerus and the right femur. This apparently colossal error may be divided nine-tenths to carelessness and one-tenth to faith in the word of another.

Another case to the point was in the same hospital. A man between thirty and thirty-five years of age entered complaining of enlarged glands on one side of the neck. He was sent to a surgical ward with the diagnosis of "tuberculous glands." He was taken to the operating room five days later. Immediately after the primary incision had been made he became cyanotic. The operating surgeon accused the interne giving the anesthetic of carelessness. The interne stopped the administration of the anesthetic and the operation proceeded. The respirations of the patient ceased entirely and a hasty tracheotomy was done. Then an inspection of the mouth was made and plainly visible was a carcinoma of the tongue. The indictment is "no system in examination."

A man, aged fifty-five years, was seen at the Post-Graduate Dispensary. He complained of an abdominal tumor and frequency of urination at night. Physical examination revealed a small tumor about the size of an orange in the right lower pelvis and a moderately enlarged prostate. Examination of a single and twenty-four-hour specimen, which amounted to 1500 c.c., indicated a typical chronic interstitial nephritis. He passed from observation for five weeks and then returned to the clinic with every symptom exaggerated.

The tumor had increased in size until it reached half way to the umbilicus and he had lost considerable in weight. He was still arising two and three times a night to urinate. After considerable argument he was induced to enter the hospital where a probable diagnosis of malignant disease of the intestine was made and operation advised. Examination of the urine, single and twenty-four-hour specimens, was the same as when first seen in the dispensary. After a week in the hospital with no change in his physical condition or the symptoms he consented

to an operation. To be sure of the abdominal tumor before operation a catheter was passed and the tumor found to be a distended bladder. The operation for the enlarged prostate gave relief from the other symptoms.

A woman had been treated for two months in a well equipped dispensary for pulmonary tuberculosis. Her complaint was a rapid pulse, sweating at night, a gradual loss of weight and some loss of strength. She entered the dispensary without giving a history as to her previous treatment. The physical examination showed a Stellwag, VonGraefe, Moebius and a Kocher sign, a rapid pulse without a rise in temperature, a marked tremor and a moderately enlarged thyroid. Chest examination was negative. The diagnosis of toxic thyroid was made. Under treatment the symptoms cleared and the patient returned to her usual work.

These few cases are cited to prove that a diagnosis is possible if we only go far enough and are careful enough. They indicate that haste means errors. They prove that it is better to examine one patient and know something about the case than to examine twenty cases and know nothing about any of them. We all make mistakes, but when we analyze them we learn that nine out of ten are due to carelessness rather than ignorance and to lack of system in our examinations. As someone wrote "experience is the school of mankind and they will learn at no other."

25 E. Washington Street.

HYPERTENSION.*

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CHICAGO.

If the conceptions as to the value of blood pressure estimations, which prevailed several years ago, were still valid, I would need to offer an apology for presuming to take your time with a discussion of the subject. But our procedure in the use of the sphygmomanometer and our conclusions from the facts obtained have been subject to criticism and modification to such an extent that our valuation of blood pressure estimations as to diagnosis, prognosis and treatment has been materially altered.

When the sphygmomanometer first came into

general use for clinical purposes, it was broadly assumed that the determination of the systolic pressure alone warranted certain deductions in regard to diagnosis, prognosis and treatment: repeated errors in diagnosis, ridiculous failures in prognosis and disappointments in treatment, humiliating to the physician and often serious for the patient demonstrated that something was wrong, either with our use of the instrument or our interpretation of the findings. Continued study, experimental and clinical, has shown that the principal mistake has lain in the too implicit acceptance of the idea that systolic readings alone are sufficient for practical conclusions regarding hypertensive states and their underlying conditions. Systolic readings, alone, are fully as likely to mislead as to inform. Save in the single instance of life insurance examinations, a systolic reading is not to be regarded as an index for diagnosis, prognosis or treatment. In life insurance work, the occurrence of high pressure on two or three separate occasions may reasonably be regarded as a sufficient reason for rejection of the risk.

It is important, at the outset, to define certain terms and to state the normal values of the necessary readings. The pressure within the blood vessels at any given time is the result of the peripheral resistance plus the energy imparted to the blood stream by the ventricular systole. The systolic pressure, or maximum pressure, is the measure, expressed in mm. of a column of mercury, of the total blood pressure: i. e., the peripheral resistance plus the rise of pressure occasioned by the cardiac systole. The diastolic, or minimum pressure, is the pressure constantly present in the vessels and really is a measure of the peripheral resistance: it represents the blood pressure when the heart is quiet. The term pulse pressure signifies the measure of the force of the heart's beat, and is equal to the difference between the systolic and diastolic pressures.

The normal systolic pressure varies from 115 to 135, as stated by most authors: in my own experience a surprisingly large majority of individuals show a systolic pressure very close to 120. The figures vary for age and sex: the pressure normally increasing with advancing years and being generally higher in males. At the age of 50, a systolic pressure of 150 may be suggestive, but certainly has much less significance than the same pressure would have at 25 or 30. The

*Read before Douglas Park Branch, March 21, 1916.

diastolic pressure should equal about two-thirds of the systolic: a systolic of 120 means a normal diastolic of about 80, leaving a pulse pressure of about 40: and in general it may be said that the pulse pressure should equal 50 per cent. of the diastolic pressure.

In determining these figures we may make use of one or more of the standard methods of physical examination, inspection, palpation and auscultation: by inspection we determine the systolic pressure by noting the disappearance of vibrations of the column of mercury: the diastolic pressure is read at the point of maximum vibration. As a method for reading the systolic pressure, the method is not accurate on account of the impossibility of excluding vibrations from the peripheral vessels, after the proximal blood stream in the vessel compressed is shut off. Palpation is used to determine the disappearance of the pulse: the systolic pressure is read with the first palpable beat, as pressure is released after the vessel has been completely shut off. In using the stethoscope, the method of auscultation, the bell of the instrument is placed over the vessel compressed, just below the cuff of the sphygmomanometer. The systolic pressure is measured by the first return of sound as the pressure is released after the vessel has been completely blocked: the diastolic pressure is read, as the pressure is gradually released, at the point where the sharp, clear tone (heard more distinctly as the pressure falls from the systolic height) becomes abruptly muffled. Warfield¹ has studied this subject thoroughly, and has been most active in teaching the profession the value of diastolic readings, and the course of procedure in taking the same. He states that he has proven experimentally that the "measure of the diastolic pressure is to be taken when the first dull tone" (as the pressure is increased) "is followed by a loud sharp one, and not at the point of disappearance of all sound" (as the pressure is decreased) as has been claimed by some investigators.

In a discussion of hypertension, as a clinical entity, what do we mean? There are many conditions associated with increased blood pressure in which the blood pressure is only an ordinary symptom, and not one of the outstanding features of the disease: these are not properly included under hypertension as we are using the term here. The systolic pressure is high in brain tumor, meningeal hemorrhage, tuberculous and syphi-

litic meningitis, in other types of nervous syphilis, occasionally in neurasthenia, and in Graves' disease; as a routine finding in gout and lead poisoning, frequently in diabetes, it occurs in connection with the menopause; it is practically always present in the rare disease known as polycythemia; aortic regurgitation is usually associated with increased systolic pressure, and is the one disease characterized by an increased pulse pressure. High pressure is sometimes found, on the first examination, from sheer nervousness; excessive use of coffee and tobacco will produce a high pressure, which may disappear with the removal of the cause, as will also great mental strain or worry. Pregnancy is frequently accompanied, without toxic symptoms, with a pressure rise of some 20 points, both systolic and diastolic. But the condition which we discuss as hypertension includes none of these, though it is closely related to the high tensions of gout, lead poisoning, the menopause and tobacco intoxication. Under the term hypertension we include those cases of persistently high blood pressure, occurring along with other evidences of nephritis or vascular disease or independently of any underlying disease. So far as we can demonstrate by present methods of examination, it really includes cases which ultimately belong under the headings of chronic interstitial nephritis, arteriosclerosis, or primary hypertrophy of the heart.

What is the significance from a diagnostic standpoint of high arterial tension? Persistently high arterial tension usually means chronic interstitial nephritis; even though the urinary findings of this clinical entity are not present, hypertension may rightly be regarded as very suggestive of this form of nephritis. Miller² believes that hypertension practically always means nephritis, and emphasizes his own experience in finding showers of casts from time to time, in urine that is usually free from the typical findings of nephritis; in any event, hypertension means a condition of the vessels or kidneys, usually of both, incurable, progressive and ultimately fatal, most frequently as a result of cardiac failure, uremia, apoplexy or angina.

The main problem of diagnosis is concerned with the pathological physiology of the disease; chronic hypertension points to progressive changes in the vessels, kidneys and heart. That we know well enough. But what is the factor that underlies the disease? Have we found a cause, physi-

cal or chemical, which produces these changes, and against which we may direct our treatment to stop the progress of the disease? As the case stands now, owing to our ignorance of the causative factor or factors, our treatment is really nothing more than prophylaxis applied after the pathological changes are well advanced; hence foredoomed to failure, so far as a cure is concerned. We believe, for instance, that a sedentary life, overeating, mental strain, overindulgence in alcohol and tobacco, syphilis, and long continued exposure to such poisons as lead are etiological factors. But we do not know how they act, nor what intermediary poisons they are responsible for, nor what factors from other sources may be associated with them. The actual effect on the vessels has been attributed to adrenalin, to an excess of sugar in the blood, to various unknown pressor bodies, the result of incomplete nitrogenous metabolism, and, of old, to urea; but lead is the sole poison, in our knowledge, of which it can be said, that we know it does produce high tension with the cardiac and nephritic accompaniments of the same. The old theories of the high pressure as a compensatory mechanism to increase the circulation and maintain the urinary output through kidneys damaged by some unknown poison, retained as a result of their own deficient function, while unable to stand the test of rigid criticism, has more than a grain of truth, and cannot, as yet, be altogether discarded. Cohnheim believed (the original idea being Traube's) that the high tension is a compensatory effort to maintain the volume of flow through the healthy portions of diseased kidneys. Jores,³ writing in 1913, speaks of the similarity of his own ideas to the old idea of Gull and Sutton, whose names were in all our text-books. He says, "The observation made by Gull and Sutton has been confirmed by recent observation, that the small arteries of the entire body are involved in the cases of granular kidney." Again, he says, "In the majority of cases, particularly in the granular kidney, the vessel alteration is the chief factor in the production of contracted kidney. The arterioles affected with a marked arteriosclerotic degeneration produce a nutritional disturbance of the kidney parenchyma," and later makes the statement that "The primary blood pressure increase is the underlying cause of the heart hypertrophy as well as of the contracted

kidney; or it may be considered that the poisons which produce a contracted kidney, from the start, produce a rise in blood pressure." Jane-way⁴ quotes Bright's original article, partly as evidence of the remarkable powers of observation and judgment of the great English clinician, but also, as he states, because "these suggestions contained the germ of such subsequent explanations of the phenomena as have attained to any wide acceptance." The quotation from Bright runs thus: "The obvious structural changes in the heart have consisted chiefly of hypertrophy, with or without valvular disease, and what is most striking, out of fifty-two cases of hypertrophy, no valvular disease whatever could be detected in thirty-four. This naturally leads us to look for some less local cause for the unusual efforts to which the heart has been impelled, and the two most ready solutions appear to be, either that the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately, or that it so affects the minute and capillary circulation, as to render greater action necessary to force the blood through the distant subdivisions of the vascular system." Not a bad recapitulation of our present beliefs in regard to hypertension.

To sum up the significance of hypertension from the diagnostic standpoint: the condition usually means nephritis of the interstitial type; if other findings of nephritis are not present, they are likely to develop later. Finally, the hypertension may, in rare cases, be evidence of so-called idiopathic hypertrophy of the heart, a discussion of which we will not undertake now. And the question of diagnosis should not be dropped without emphasis on the importance of the diastolic pressure in making up the diagnosis of hypertension. To quote Stone,⁵ "since the diastolic pressure measures the peripheral resistance it is a better index of hypertension than the systolic pressure," and Warfield says,⁶ "The conviction is growing that it is the height of the diastolic pressure rather than that of the systolic that is the really vital point in blood pressure determinations."

The value of hypertension alone, as an index of prognosis, is almost nil. Save in cases where the diastolic and systolic pressures are both high and show no response to treatment, prognosis based on the single symptom of hypertension must be very guarded. The prognosis rests primarily

on the response to treatment. In addition, one must consider the evidence of cardiac disease, the condition of the kidneys, the history of the duration of the disease, the presence or absence of symptoms of uremia or premonitory symptoms of apoplexy, the patient's financial ability to drop business or household worries, and to get the best care, his moral ability to discard bad habits and to give up the pleasures of the table. The pressure may show an abrupt rise just prior to the onset of uremia; a less rapid rise may be seen as broken compensation supervenes. A high pulse pressure means a heart overworked, and is significant of impending trouble; a low pulse pressure means a weak heart that is unequal to its work, and is even more ominous.

From the standpoint of treatment, the cases of hypertension may broadly be considered in three classes:

First: Cases of hypertension without symptoms. These are the cases accidentally discovered in the course of a life insurance examination or of a routine examination made without thought of hypertension. The treatment is exclusively hygienic and dietetic; the patient should be warned and his co-operation secured; overwork, worry, excessive social activities should be forbidden; tobacco and alcohol should be given up; care should be taken to avoid exposure; the bowels should be regulated; as to the diet proteins, salt and food rich in purin bodies should be distinctly limited, not necessarily forbidden; overeating should be interdicted, and rich, heavy, indigestible food of all sorts should be warned against.

The second class is made up of those cases of hypertension which show symptoms due to the high blood pressure. These are the patients with headache, vertigo, insomnia, tinnitus, disturbances of vision, numbness and tingling of the extremities, neuroses of various sorts (senile neurasthenia usually means arteriosclerosis or hypertension), angina, thoracic or abdominal, and rarer conditions as intermittent claudication or erythromelalgia. The treatment along dietetic and hygienic lines is the same, only more so, as for cases of the first class; a stricter diet, a carefully regulated life, abstention from tobacco, alcohol and coffee, residence in a warmer climate in the winter, if possible, entire freedom from business or household cares. Potassium iodid in moderate doses (5 to 15 grs. t. i. d.) over long

periods of time is the drug of choice; it matters little that we do not know why the drug is useful, the fact still remains that clinical experience approves it. Venesection may be employed from time to time, in the presence of an aggravation of the symptoms. Tr. Aconite, given with the iodid, is an old remedy, which has fallen into disuse; given carefully, it sometimes has a decidedly good effect. It is in this class of cases that the various members of the nitrite group have been used most extensively and their use deserves some discussion, though the limits of this paper forbid an adequate presentation of the subject. I quote Warfield again:⁷ "Much of the hypertension which we see is a compensatory effort on the part of the heart to maintain the circulation in equilibrium. Regarded in this light it becomes physiologic and successful attempts to reduce it, not infrequently produce unpleasant results." This expresses the attitude of the profession at present; medical reduction of blood pressure by means of members of the nitrite group is a risky procedure. I except such crises as the various types of angina where amyl nitrite and nitroglycerin are used to such good purpose, but I regard the continued use of vasodilators as generally ill-advised, and more likely to harm than to help.

The third group comprises the cases of hypertension with broken compensation. The hygienic and dietetic treatment must be rigid; rest in bed, a milk diet, absolute or nearly so, fairly profuse catharsis are indicated without delay. The drug therapy consists in the use of potassium iodid, opiates as necessary, and digitalis; under digitalis the pressure usually falls several points, and improvement is likely to be marked. Fear of digitalis is groundless. In these cases of high pressure with broken compensation it is our mainstay, and after compensation is restored, its use in smaller doses may be continued over long periods of time. And again, we must mention venesection, which is often of great value, especially in relieving distress while awaiting the action of digitalis.

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the same. One test gave .425-.475. Other hemolytic tests on the resistance of the corpuscles of this patient were made as follows:

Normal serum (No. 1) + patient's corp. (washed) = no hemolysis.

Normal serum (No. 2) + patient's corp. (washed) = no hemolysis.

Normal serum (No. 3) + patient's corp. (washed) = no hemolysis.

Patient's serum + normal corpuscles = no hemolysis.

Normal serum + normal corp. + complement = no hemolysis.

Normal serum + patient's corp. + complement = no hemolysis.

Patient's serum + normal corp. + complement = no hemolysis.

Patient's serum + patient's corp. + complement = no hemolysis.

It would seem, therefore, that there was nothing abnormal in the behavior of the patient's serum or corpuscles as indicated by these cross experiments. The Wassermann test was negative.

The stools were not clay colored and gave a strong positive reaction with the sublimate test and also for urobilin.

Case 2. The second case of hemolytic icterus was evidently of the family type and concerned a young woman, Mrs. S., aged 32 years; O-para; born and lives in Illinois. Father was jaundiced during the later years of life, but definite particulars could not be obtained. There are nine members of the family; two brothers and three sisters jaundiced since childhood, two of these known to have large spleens. One brother who is icteric was told he had tuberculosis. The patient has been jaundiced for seventeen years and complains only of lassitude. No pruritus. No history of fever. Was treated for "enlarged spleen" several years ago. Three years ago operation on gall bladder, and was told that stones were found. Reports that stools are well colored. The patient is well nourished; deeply icteric; pulse 80; temperature normal. Spleen reaches two-thirds distance to crest of ileum, not tender. Liver 3 cm. below costal arch, not tender. Urine free from bile; contains urobilin. Hemoglobin, 75 per cent.; leucocytes, 3,300.

In the urine there was no bile, but urobilin and urobilinogen were found in large amounts (chemical and spectroscopic tests). The blood serum had a characteristic yellow color similar to the previous case, but the test for bile was negative as were also tests for urobilin and urobilinogen. The fragility of the red corpuscles was .375-.475.

Case 3. Mr. T., aged 18 years. A patient of Dr. Robt. Preble, who has kindly permitted the use of the following clinical notes:

Family history negative as far as jaundice is concerned. Had scarlatina at ten years; no other serious illness. Jaundice appeared six years ago; does

not cause him any inconvenience. No history of fever.

Patient icteric. Spleen four fingers below the costal arch. Liver not palpable. Stools and urine both contain bile. Hemoglobin, 82 per cent.; reds, 4,200,000; leucocytes, 11,400. Fragility ranges from .400 to .600.

The increase of fragility in two of these cases is not marked though compared with the fragility in the five normal individuals, shown in the table, the figures are high, exceeding the latter by about 5 per cent. Case three shows a more marked increase of fragility.

In the table, following these cases of hemolytic icterus, is a series of icteric cases chiefly of the obstructive type, with bile in the urine; also a series of pernicious anemias. In both these groups the fragility is strikingly decreased, ranging as a rule well down below .400 as a minimum. It is in contrast with these that the fragility figures of the hemolytic icterus cases stand out. A number of observers (Morse, Chaufford, Sommel, Turk) have noted cases of clinical hemolytic icterus without marked increase of fragility or with normal resistance of red corpuscles. But it appears that no one has observed in these cases decreased fragility as occurs so uniformly in the obstructive icterus. For purposes, therefore, of differentiating the hemolytic icterus from the hepatogenous type even normal fragility of the hemolytic icterus, which may exist, may be of value for diagnostic purposes.

Attention is called to the two cases (Nos. 17 and 18) of cirrhosis of the Hanot's type. The fragility in both is below normal. A case of phosphorus poisoning with marked liver changes and leucin crystals in the urine gave a high resistance probably on account of the high fat content of the serum. Number 31, a patient upon whom a splenectomy had been performed four years previously on account of a gunshot wound showed a normal resistance. Nothing especially need be said about the group of pernicious anemia, except that the low fragility figures correspond closely to what others have found in this disease.

The relation of urobilinuria to fragility of red corpuscles is an interesting one, but for various reasons difficult at the present moment to analyze. Urobilin (and urobilinogen) is found in practically all of these cases of hemolytic icterus in

the urine in increased amounts and probably is due to the blood destruction. It is not present in the blood serum. Bile may or may not be present in the serum in detectable amounts. Of the two cases of hemolytic icterus observed, one showed bile in the serum in small amounts; this was not constant. Neither showed urobilin or urobilinogen in the serum. However, in both, the serum had a characteristic lemon or canary yellow color which was very noticeable even when greatly diluted in the citrated or washed blood. If this were bile or urobilin one surely would expect to get strong positive tests for these bodies constantly; whereas, the test is negative or at times only faintly positive. Others have noted this, as for example: Thayer and Morris,² who in one of their two cases, noted bile though the serum of both was very yellow. We have also noted this in other cases, for instance, in a case of syphilitic cirrhosis (No. 15). Here, likewise, a large amount of urobilin and urobilinogen appeared in the urine.

Apparently no explanation for this appearance of the serum has been given. That it is in some way associated with the blood pigments there is little doubt. It is possible that it may be dependent on a disturbance in the fat or fatty acid content of the serum which occurs in these cases, as has been observed by King.³ It is more probable that urobilin in the blood and tissues exists in an oxidized form and does not in this condition give the usual tests for urobilin. This has been practically demonstrated by Roth and Herzfeld⁴ and by Schlesinger, who found that urobilin added to blood or to serum plus red corpuscles rapidly disappeared, whereas if added to serum without red corpuscles it did not disappear. They, therefore, conclude that in blood the urobilin exists probably in an oxidized state. It is interesting that in the last stages of lobar pneumonia urobilin occurs in the blood with great constancy, as shown by Connor and Roper.⁵ Roth and Herzfeld have tested the ability of the kidney tissue to produce or create urobilin from serum which did not show it previously. The attempt was distinctly successful in one case.

The recent observations of King referred to above have a very distinct bearing on the basic problems underlying the different clinical conditions mentioned above. In all apparently the blood destruction is excessive, thus accounting for the anemia and icterus. King found that in this group of diseases there is a marked disturbance in the normal relation of fats, cholesterol bodies, and unsaturated fatty acids. Fats and cholesterol are anti-hemolytic, as is well known; the fatty acids, on the other hand, are strongly hemolytic. In pernicious anemia he finds a very high content of unsaturated fatty acids and also a high content of fatty bodies. The fatty acids may explain increased blood destruction and the increased amount of fat in the blood may explain the increased resistance of the red blood cells. In hemolytic icterus the fatty acids are markedly increased, but the fats are normal or reduced in amount. This might explain the blood destruction and also why we have normal or increased fragility of the red corpuscles. Furthermore, splenectomy in both dogs and human decreases the amount of unsaturated fatty acids in the blood and increases the fat content, thus tending to correct the disturbances mentioned in the above diseases. These facts King uses to explain the good results obtained by splenectomy, not only in hemolytic icterus but also in pernicious anemia and in other conditions where the spleen is involved. It may be doubted whether this explanation will cover all the facts and whether pernicious anemia will yield to treatment by splenectomy. But what seems to be a real contribution to this subject is a recognition of the fact that there exists a close relation between the spleen, the fat and fatty acid content of the blood, and this group of diseases including pernicious anemia, hemolytic icterus, and probably splenic anemia.

From the above data and discussion a few points stand out which may be summarized as follows:

The fragility of red corpuscles in hemolytic icterus is normal or appreciably increased; in obstructive jaundice the fragility is quite uniformly decreased.

This difference may be of aid in differential diagnosis.

In pernicious anemia the fragility is regularly decreased.

2. J. H. H. Reports, 1911, 22, p. 88.

3. Archives of Internal Medicine, 1914, Vol. 14, p. 145.

4. Deutsche Med. Woch., 1911, XLVI, p. 2129.

5. Arch. of Int. Med., 1909, Vol. 11, 532.

FOLLICULAR TONSILLITIS IN ITS RELATION TO SYSTEMIC INFECTIONS.*

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This condition of the faucial tonsils may be an entirety of itself or it may be one stage in other forms of tonsillitis.

It may be well to give a macroscopic description of the tonsil and the chain of lymphatics involved in an infection of it.

The faucial tonsils have 10 to 15 crypts lined with squamous epithelium which is continuous with the epithelium of the throat. Drainage from the tonsils into the throat is poor at best, for the reason that the crypts are branching and frequently intercommunicate in the depths of the tonsil. In submerged tonsils some crypts are entirely covered over.

The lymphatics of the faucial tonsils empty into the superficial cervical glands, while the adenoid lymphatics pass through the post-pharyngeal glands to the deep cervical glands and together the superficial and deep lymphatics empty into the thoracic duct. The cervical lymphatics communicate with the lymphatics of the thyroid gland and the pleura.

At the present time, no afferent lymphatics leading to the tonsils have been shown, although experiment would indicate their presence. Lexer injected inert coloring pigment into the turbinates of the nose and found them later in the tonsils. Henki found the coloring matter in the tonsils after injecting it into the gums.

Wood and Grober are not agreed on some minor branches of the lymphatics, although both have found the larger chains as stated.

It is almost unnecessary to state the symptoms, as all of you see as many or more of these cases than the specialist does, so I shall mention them briefly.

The acute stage of follicular tonsillitis is commonly described by the patient as "catching cold with a resultant sore throat." At the outset most sore throats look similar in appearance except the diphtheritic, and often this looks like the others. In a short time, from a few hours to a few days, the condition develops to a stage where it can be differentiated in most cases.

The symptoms set in suddenly, attended by

malaise and fever. Chills or slight rigors frequently are present. The temperature gradually rises to 102 or 103. It may reach this elevation in 12 hours or may be not for 72 hours (three days). At first deglutition is accompanied by soreness which becomes painful as the disease progresses. The inflammation extends to the pharyngeal mucosa, and sometimes to the eustachian tubes and the middle ear, with earache and tinnitus. The gland under the angle of the jaw is usually swollen and tender because of its physiological activity in its attempt to check the invading host of bacteria which have passed through the epithelial walls of the crypts of the tonsils.

The swollen condition of the tonsil and surrounding tissues renders motion of the head painful; it also interferes with articulation and phonation.

The tongue is coated with a yellowish or brownish fur. The breath is fetid and offensive.

The acute stage seldom lasts longer than four days, but in this time it has considerably weakened the patient.

The foregoing are the subjective symptoms. Now we come to the objective findings (or what the doctor sees).

When the patient comes to us or we are called to the home, we find the tonsil swollen and red, the crypts may not have reached that characteristic yellow furred appearance, especially in the central posterior portions of the tonsils. The surrounding pharyngeal tissues are redder than normal. Later the tonsil and the surrounding tissues are more swollen and a creamy discharge is seen extruding from the mouths of some of the crypts. The patches are not true membranous products as found in diphtheritic and pseudo-membranous inflammations, but are the debris and secretions that fill the crypts.

Sometimes a fibrinous exudate is mixed with the debris which gives it the characteristics of an inflammatory membrane.

The debris and exudations can be easily wiped away, which is not the case with the diphtheritic membrane. A diphtheritic membrane may resemble the follicular type in 12 or 24 hours after the use of antitoxin.

It may not be out of place to mention the differentials of acute follicular tonsillitis to diphtheria.

*Read before the Englewood Branch, Chicago Medical Society, January, 1916.

Follicular Tonsillitis

1. Onset marked by sharp rise in temperature.
2. Rapid bounding pulse.
3. Depression, not marked.
4. Exudate limited to tonsils, especially crypts.
5. Exudate not adherent.
6. Exudate soft and friable.
7. Exudate not distinctly membranous.
8. Swollen glands uncommon, except in severe cases.
9. Occasional albuminuria.
10. Klebs-Löffler bacillus absent.
11. Vincent's angina (diphtheroid) inflammation and ulceration in one tonsil, without fever, caused by the bacillus fusiformis.

Diphtheria

1. Onset, rise in temperature gradual.
2. Pulse slow and feeble.
3. Marked depression.
4. Exudate extends beyond tonsils, not limited to crypts.
5. Exudate adherent.
6. Exudate firm and leathery.
7. Membrane may be removed in strips.
8. Swollen glands common even in mild cases.
9. Albuminuria common.
10. Klebs-Löffler bacillus present.

If the inflammation persists after the faucial tonsils have cleared up an examination of the pharyngeal and lingual tonsils should be made, as these often are infected similarly and often simultaneously with the faucial tonsils. These can only be examined by the laryngeal mirror, consequently they are usually overlooked.

The toxins eliminated from the crypts and tonsils and reaching the circulation must be eliminated to a degree through the kidneys, hence a frequently complicating nephritis.

Dr. Campbell, in Montreal Children's Hospital, found acute tonsillitis complicated by albuminuric nephritis in 3.5 per cent. of cases and in 90 per cent. found casts; of these 96 per cent. cleared up when the tonsillitis did.

Dr. E. H. Parker, Minnesota, reports cases of acute tonsillitis followed by acute nephritis, chorea, endocarditis, pleurisy, neuritis, osteomyelitis, septicemia.

Personally I believe that many of the past writers have grouped all of these symptoms and called them rheumatism.

In 1910, Dr. Loeb said that acute nephritis

results from acute tonsillitis far oftener than is generally believed.

Dr. F. Theisen (*Albany Medical Journal*, 1913) reports six (6) cases of acute thyroiditis following tonsillitis.

Dr. Ben. Witt Key states that many cases of phlyctenular conjunctivitis are complications of acute tonsillitis.

Dr. N. L. Wilson reports four cases of acute nephritis, four rheumatic fever, following acute tonsillitis, one nephritic died of septic endocarditis.

Dr. Wilson also reports acute pneumonia, appendicitis, orchitis, and interstitial keratitis from acute tonsillitis.

Dr. J. C. Beck reports as complications acute suppurative ear conditions, also apparent suppuration in the bladder and uterus.

Dr. H. J. Davis (London, Eng.) reports a case of acute tonsillitis, left side with fatal cavernous thrombosis, left side, by way of facial vein. Fatal in 18 days.

Dr. Philip K. Brown states that peri-myocarditis, arthritis, chorea, neuritis, pleurisy, tuberculosis, iritis, phlebitis, osteomyelitis, Hodgkin's disease, forms of leukemiare, complications following acute tonsillitis.

Dr. Dick and Burmeister report asthma, convulsions and true epilepsy following acute tonsillitis.

Dr. Keef's case, a child, aged six years, had pleurisy and double mastoiditis following acute tonsillitis.

Dr. O. T. Freer mentions nervous cough as an after math.

Dr. W. L. Ballenger, in his paper entitled "Route of Pulmonary Infection," refers to Grober's Experiments and is firm in his assertion that systemic and glandular tuberculosis is frequently caused through the tonsil, thence to all parts of the body.

Dr. E. Fletcher Ingals, in his paper before the American Climatological Association (1913), sustains the views of Jonathan Wright and emphatically states, "I do not believe there is any relation between tonsillitis and pulmonary tuberculosis."

Dr. L. Fischer, paper on Gastric Fever and Acute Tonsillitis, believes that the vomiting when present is caused by impinging of tonsil on the pharynx, thereby irritating the pharyngeal wall

with resultant nausea and vomiting not of gastric origin.

Dr. C. C. Biedert reports a case of acute follicular tonsillitis with involvement of the lingual tonsil causing cough and lingual varix with hemorrhage, which is not pulmonary, as is often supposed.

Dr. C. Verdele of Bordeaux, France, reports two cases of acute bilateral tonsillitis complicated two days later by appendicitis.

The writer has had one case of earache and partial deafness after acute tonsillitis which did not clear up until the tonsil was enucleated one month later. The adenoids were removed previous to this tonsil infection.

One case of acute right unilateral thyroiditis three days after onset of acute tonsillitis.

One case of Ludwig's angina at the same time as the acute tonsillitis.

Three cases of arthritis (commonly called articular rheumatism). The addition of high frequency electric modality, with the salines and salicylates gave quicker results in my series of cases.

6860 South Halsted street.

A PRELIMINARY REPORT ON "GRADUATED EXERCISE" AS INAUGURATED AT THE COOK COUNTY TUBERCULOSIS HOSPITAL.*

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It has become a recognized fact that pulmonary tuberculosis is one of the most curable of any of the chronic diseases, when recognized early and properly supervised.

It is also well recognized that this disease, by virtue of the chronicity of its processes, as well as the long months of enforced idleness necessitated thereby, produces yearly a vast number of persons incapacitated for their support or that of their dependants.

One of the best known physicians in the Municipal Tuberculosis Sanitarium Dispensary service said on his visit to Oak Forest: "When are you going to quit sending us so-called apparently arrested cases, which go to work and we return

them to you with a recrudescence inside of three to six months?" Another remark we have heard from a similar source is "Stop sending us fat paupers."

The house physician of one of the largest retail drygoods houses in the Chicago downtown district once made the remark that "We take great pains in having our employees, who contract pulmonary tuberculosis, placed in a sanitarium and then consider our obligation fulfilled; we don't want them back after they are discharged, for they are either unfitted for work on account of their prolonged and enforced "rest," or they soon break down and must be returned to the sanitarium."

There are unquestionably a large number of so-called active cases of consumption, who are daily attending to their occupations, without seeming in the least to affect their endurance or the quality of their work; many, perhaps, being entirely unconscious of any disease being present.

The condition of the lungs per se, even in the presence of a positive sputum finding, is not sufficient data upon which to estimate the degree of activity, render a prognosis, nor to estimate the resistance.

A small area of tuberculous disease may mean great intoxication with resulting incapacity for work or a large area may be almost unnoticed by the patient; and the latter case may go on for years in apparent good health and perhaps die of another condition before the tuberculosis was even suspected.

To Sir Almroth Wright of England we must lay the credit of the impetus given to the study of the relation of pathogenic organisms and the elaboration of curative toxins. He says "No one recovers from an acute or chronic bacterial disease unless it be by the production of protective substances in his organism."

On this theory, it is obvious that prognosis depends upon the capacity of the organism to develop those specific protective substances which are always the product of the peculiar reaction to the stimuli furnished by the infecting agent itself.

The acute or active stages of the disease may be explained by the entrance into the blood of overdoses of toxins, manufactured at the seat of infection, preceding the elaboration of neutralizing substances.

*Read before the Lake County Medical Society, Feb. 10, 1916.



Fig. 1. Graduated Labor class building cinder walks at Oak Forest.

It has been found by long experience that patients with acute manifestations of tuberculosis are much improved by rest in bed; that having attained a normal temperature, and other evidences of improvement, they may, if prematurely allowed to get up and move about, quickly relapse with a return of the acute symptoms.

These phenomena have led to the principle of "controlled auto-inoculation," or a system of "graduated exercise"; using the patients' own organism for the elaboration of protective substances for the neutralization of the infection from which he is suffering.

It has been found that by a careful regulation of rest and exercise, auto-inoculation may be very accurately measured and controlled, and in cases in which this is possible, it may be employed with inestimable advantage in the treatment. It has been further found that when auto-inoculation cannot be controlled, a fatal termination is inevitable.

With the subsidence of fever and other manifestations of activity, "graduated exercise" is commenced. Walking has been used for many years, and it has been found that those patients who attained the higher grades of exercise improved more rapidly and permanently than those who remained for long periods in the lower grades.

It remained for Doctor Paterson, of Frimley, England, to offer a satisfactory explanation of the real value of exercise. He, it was, who found that there was a definite relationship existing between auto-inoculation induced by exercise and the condition of the patient as shown by Wright's opsonic index, body temperature, weight and the character and quantity of the sputum. All of the advantages formerly recognized as the result of exercise could be explained on the theory of active immunization, effected by the introduction of slowly increasing doses of toxine derived from the focus of infection and elaborated in the patient's own body.

Wherever Paterson's principles have been rigidly followed, it has met with success exactly according to the principles upon which it is based. Where the economic side is foremost in requiring labor of tuberculous patients without comprehending the dominant function, viz.: the production of auto-inoculations of specific toxines, the system is doomed to failure.

Paterson has shown that the effects of treatment may be very accurately gauged by its influence upon, (1) temperature; (2) sputum; (3) patient's feelings; (4) weight; (5) appetite. These are quite similar to the guiding signals in tuberculin treatment, and, needless to say, where graduated labor is carried out accord-

ing to Paterson, tuberculin treatment is discontinued.

Where the stimulus of auto-inoculation is insufficient there tuberculin is indicated.

With increasing exercise the patient must be constantly supervised, and familiarized with the danger signals of an "overdose." A failing appetite, malaise, or loss of weight, especially when subnormal, are significant symptoms and frequently appear before temperature rise or increase of sputum. They are indications for a reduction of exercise or a return to rest. A rise of temperature which does not fall to normal after thirty minute's rest, and a marked increase of sputum, or a distinct change in its character towards purulency, with increase of cough, are also indications for rest.

Paterson considers a mouth temperature of 99° in the male and 99.6° in the female, after thirty minutes' rest, if attended by headache or malaise, an indication for absolute rest. Our experience has taught us that women patients with a temperature of 99.2° are in the same relative condition as men with temperature of 99 , and should be on rest when that temperature is reached. Temperature should be very closely watched, and for this purpose individual charts should be provided and a daily record kept. The patient should be instructed in the taking of his pulse and temperature, and the keeping and recording thereof on his own chart.

Hemoptysis usually gives no trouble. Hemorrhages will occur but usually not during the exercise period, and it is difficult to say that they are caused by the exercise or that they occur more frequently in exercise cases than in those not in these classes. Our experience has been that blood spitting is more common in the lower grades, or those on no exercise, than in the higher grades. Should it occur, the patient should be placed at absolute rest until the bleeding ceases, when he is immediately placed back in the grade which he left. Slightly tinged sputum need not interrupt the treatment.

The Cook County Tuberculosis Hospital at Oak Forest, Illinois, is probably the first institution that has had graduated labor patients do the menial work of the institution, under strict medical supervision. Sweeping, scrubbing, window washing, cleaning of bath tubs and toilets, woodwork, etc.; carrying in coal, together with the digging and moving of a clay bank and the building of cinder walks, and clerical work on charts and in laboratory are some of the occupations of the men, alternated with walking from fifteen minutes to two hours once or twice daily. The women do cleaning of woodwork, sinks; polish brass, sewing, crocheting and knitting and mending; clerical work on records and in laboratory, besides walking prescribed distances.

Our plan consists in the following, viz.: After the patient has been in the institution at least



Fig. 2. Graduated Labor class starting on a "hike."

two weeks and is making his own bed, going to the dining hall, and walking fifteen minutes twice daily, he is sent to the Cottage Department. Here he is instructed in the use of his thermometer, in taking his pulse and the recording of same on his chart. He is also told the danger signals of an "overdose," and instructed that should he have a headache, malaise, chest pains, a temperature of 99°, or any other untoward condition that *he* might consider a sufficient reason, he is to go to bed and notify his nurse. He is not to resume his exercise until same is again prescribed.

After these instructions he is on "rest," that is, lies down, or sits in his sanitarium chair three days, but is allowed to take his meals in the dining hall. After three days (with a normal temperature), he is given fifteen minutes walk in the afternoon, increased three days later by fifteen minutes walk in the morning. After he has been on thirty minutes' walk for six days he is given, in addition, fifteen minutes light cleaning, and this, or the walk, is increased five minutes every third or fourth day until he is doing two hours light cleaning in the morning, and one-hour to one and one-half hours walk in the afternoon, when in addition he enters the "bucket brigade," or sweeping or mopping gangs. In the "bucket brigade" he carries (on the present piece of work) 10 pounds of clay, 5 trips, 75 feet, increasing one daily to 35 trips, when he is given an ordinary light shovel and helps fill the buckets for his companions, commencing thirty minutes a day and increasing five minutes a day. The patients are instructed to carry one bucket with one hand and alternate with the other.

This plan of work is original in this institution, and every sanitarium must work out its own problem, based on the kind and character of the patients and the work that is available.

We have found our patients very co-operative. Have had no complaints worth mentioning, and believe that a thorough understanding between medical adviser and patient is all that is necessary to devising a working plan and carrying it out.

It is our policy to have the work consist of something that is constructive, that is, that there is a reason for the labor—that something is being accomplished. Digging and carrying buckets of

clay from one pile to another and then digging and carrying it back again is not conducive to stimulating content among the workers. Walking around a stated path time after time, day in and day out, is not the way to get co-operation. Our patients are digging away at an unsightly clay bank and filling a gaping hole at the end of one of the cottages. They are walking on the country roads with a nurse or appointed captain, who acts as a monitor. They have built a toboggan slide on a side hill, and the zest and enthusiasm manifested in all of these undertakings is certain of great satisfaction to those in charge. Furthermore to have patients cheerfully arrive at the higher grades of labor, say five or six hours daily of heavy work, something of immediate return or compensation should be provided. Recreation in the form of walks, games, etc., and the presence of the physician working with them proves a great incentive to the continuation of the exercise. Patients, like other human beings, do not like to do something arduous and get nothing in return. The illusory promise of a cure in the dim distance does not take the place of recreation or a cash payment perhaps that he gets *now* and that he may enjoy *now*.

Some institutions have a fund from which patients who are doing more than three hours work are paid. The three hours pays for his institutional care and keep; the extra work done he gets cash for. This is a splendid idea. It not only keeps the patient in the institution longer, thereby perhaps instead of sending him out a "quiescent" we send him out "apparently arrested," but he takes to his work more cheerfully and malingering is at a discount. Furthermore many of our cases are not able to do eight or ten hours work daily, but can do four or five, and it is better from all aspects to have the patient in the institution paying for his keep than to go out where there is no market for the three, four or five-hour-a-day man, and become an object of charity, overwork himself or perhaps become a law breaker. Graduated labor fills in the interim between the subsidence of the fever, and other active symptoms, and the time when the patient is ready to resume his occupation—which is always a restless period for the enterprising patient; it not only prepares him for work, but demonstrates the vital reserve or power for work in the individual. As one physician has put it very

aptly, "it not only shows up how much work he can do, but how little he can do."

Prescribing of medicines has been practically discontinued. With the exception of an occasional cathartic, or sinapism we may truthfully say that we seldom find necessity for resort to drugs.

With increasing appetite and weight, due to the increased vigor of our patients, we have a striking picture of contentment and satisfaction throughout the exercise classes. We scarcely ever have a complaint about the food. And this is particularly noticeable among the young women, who as tuberculous patients, are notoriously poor eaters. It requires an appetite to enjoy food, and with their time occupied in useful work they eat their meals with a relish which is marvelous, when compared with patients in our other departments or in the same department before this system was placed in vogue.

The successful treatment of pulmonary tuberculosis cannot be carried out in the home; neither can tuberculin treatment nor graduated exercise be successfully inaugurated and scientifically prescribed outside of the well organized, well equipped and well manned sanitarium. With this powerful remedy of graduated exercise, or controlled auto-inoculation, we are gradually and carefully bringing our patient up to his full capacity for work, so that when we discharge him we know positively that he can do the equivalent of the amount of work outside of the institution that he did while resident there, providing he has the proper food, air and rest. The way he spends the fourteen hours between quitting time and morning will have more to do with his continued good health than the ten hours in which he is laboring.

Two processes, one destructive, the other beneficent, are constantly at work in every case of pulmonary tuberculosis. The destructive process is manifested in the infiltrated, consolidated and excavated areas; the beneficent, the connective tissue process which is nature's method of walling off the diseased from the healthy lung tissues. Meanwhile the stimulus of the toxins thrown off by the bacilli is developing antibodies which are endeavoring to neutralize these destructive toxins. In other words, developing an immunity to them.

Baldwin of Saranac Lake, insists that there is no immunity to tuberculosis, but merely an increased tolerance. But be that as it may, we do know that we have curable and cured cases, and that our success dates from the time when we inaugurated the principle of using the proper methods, kinds and doses of rest, food, fresh air and regulated exercise. Graduated exercise limits the destructive process and hastens the fibrosis. It supplants the use of tuberculin and the dose of auto tuberculin is far easier controlled. It is also far more potent in being elaborated from bacilli which are from the strain with which the patient is afflicted, and it is from live bacilli instead of dead from which all stock tuberculins are derived.

You have cases of known pulmonary tuberculosis in your private practice who are at work, who cannot, for various reasons, be sent to sanatoria. Certain ones feel that they cannot give up their incomes, others cannot be prevailed on to leave their homes. You can do much for this class of patients by regulating and prescribing their diet and supervising their working conditions, such as seeing that their working quarters are well aired, well lighted and clean. Have them keep charts recording their pulse and temperature on getting home from work, rest half an hour and take and record them again; then allow their regular meal. Prescribe their recreation and rest, and remind them that it is not the time they spend in the shop, but how they spend the fourteen hours outside the shop that causes a break-down.

Follow up the quiescent and arrested cases discharged from the sanitarium, using the same or a similar plan, and you will be doing much toward lowering the percentage of dependants, which are now so numerous as a result of having, or having had, this most widespread and debilitating disease.

Avoid the usual criticism of the modern treatment of pulmonary tuberculosis that we "Pauperize the Patient," and instead with medical supervision return him to a working efficiency.

My thanks are due to your former fellow townsman, and our esteemed head physician, Dr. W. H. Watterson, also to Senior physician, Dr. John W. Turner, both of the Cook County Tuberculosis Hospital, Oak Forest, Illinois, for many valued suggestions, and to Marcus Pater-

son of Brompton Hospital Sanitarium at Frimley, England, and Herbert Maxon King of Loomis Sanitarium, Liberty, N. Y., and S. G. Bonney, Denver, Colo., from whose writings I have freely drawn.

A BAD STOMACH AND ITS INTERPRETATION.*

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My justification for bringing this commonplace subject to your attention is the fact that every one of you have from one to a half-dozen of these cases under treatment right now.

Some of them have been ill so long and have made their melancholy plea for relief so often, and in vain, that you almost hate to see them come to the office.

You have given every remedy you have heard of or have read of and don't know what else to do. You have called the case indigestion, dyspepsia, catarrh of the stomach, all of which mean the same thing. Some of these patients who have an occasional paroxysm of acute pain have been told that they had bilious fever or neuralgia of the stomach. You have been embarrassed when asked if there was no cure for it.

Now let us glance at some of the commonest causes of this common complaint and see if we can find a more satisfactory answer to this question than we have been offering.

In the presence of such a case let us first think of direct and reflex pathology. As direct pathology we may admit occasional cases of gastric catarrh due to over-eating, or drinking, or the ingestion of unsuitable or improperly prepared food. These, however, are not obscure. Next let us think of ulcer of stomach and duodenum.

After these let us recall some of the common reflex pathology. We may think of the gall bladder, the appendix and the kidneys. It is a habit with me to recall the etiology in the form of a quadruple, omitting the more easily demonstrable causative elements of errors of food and drink and disorders of the pelvic organs of females. The quadruple is as follows: Cholecystitis, gastric ulcer, pathologic kidney and appendicitis. After this quadruple has been carefully con-

sidered and excluded, there remain only the rare or less frequent etiologic factors. One of these infrequent gastric crises was the cause of my undoing years ago, when I made a most humiliating blunder in diagnosis. It proved to be the gastric crisis of locomotor ataxia. I recently reported the instance to a district medical society in Kentucky to sound a note of warning to my confreres. We get less benefit, however, from the consideration of these rare and exceptional problems than we do from the regularly recurring cases in our daily rounds. The latter shall be the burden of what I should like to discuss briefly today.

It is unfair to these patients to pass them along from week to week and month to month and even year to year under the easy subterfuge of indigestion, etc. They are disabled, miserable and often in danger. Instead of being hopeless incurables, the great majority of them are perfectly curable and can be made comfortable, useful and happy by careful investigation and proper treatment. Let us return to our pathologic quadruple and let us omit from detailed consideration the kidney feature which has less to do with a bad stomach than the other three. It must always be kept in mind, however, for diagnostic purposes. Naturally enough one looks to the stomach for an explanation of stomach symptoms. When a patient puts a finger on the stomach and says there is where the pain is, we are not inclined to look elsewhere for the disease. This fact is often the cause of our undoing.

Inflammation in the gall bladder causes a bad stomach and thousands of stomachs are under daily treatment and starvation diet that are not diseased at all. Gall bladder disease has established an alibi in the minds of the physicians as well as the patients. I have made the mistake myself, but since I have grown more or less wise to disguised phenomena by accumulated observation I have often observed other medical men going astray on the same road. I have said bilious attack and neuralgia of the stomach, when I didn't know I was lying to my patient. I hadn't traced the history of the case nor made a detailed examination of the patient or I just couldn't get my head turned around to the viewpoint which made the case show plainly. I couldn't budge from my first viewpoint when I should have walked all around to every viewpoint. Most any man of ordinary information can make a diag-

*Read before annual meeting, Southern Illinois District, Medical Society at Harrisburg, Ill., Nov. 5, 1915.

nosis of a patient who has typical and repeated attacks of gall stone colic. In fact, this is the most reliable symptom of gall bladder disease, but it is sometimes absent. At other times the symptom disappeared so long ago that the patient has forgotten it and we must pump it out of his history through him or some member of his family. Late years I have had numerous consultations with men in general practice and when I tell them that I attribute the stomach symptoms to gall bladder disease they promptly inform me that the patient has never had jaundice. When I declare to them that jaundice is not a symptom of gall stones or cholecystitis they have sometimes stared at me. Jaundice is a symptom of disease or obstruction of the ducts and not of the sac. Rigidity and tenderness over upper right rectus often assists us in making out gall bladder disease. A third symptom is the radiation of the pain to the right, passing under the right shoulder blade. It is rare for it to radiate to the left. A special character of the pain, if stones are present, is its sudden onset and its termination as suddenly. These are due to the lodgment in and subsequent liberation of a stone from the cystic duct. From actual disease of the stomach, gall bladder disease can often be distinguished by the pain showing no connection with food. These patients will be seized with pain when the stomach is empty. I have had them report attacks before meals and at three or four o'clock in the morning. Gall bladder cases are often well nourished, even fat, as distinguished from the lean, starved appearance of the patient with disease of the stomach. These cardinal symptoms of gall bladder disease, if kept fresh in our minds, will usually keep us from treating healthy stomachs for supposed disease.

Observation of histories and symptoms of a large class of bad stomachs, when followed to the operating table, have proven positively that they are due to disease of the appendix. Several years ago I heard C. H. Mayo explain in his clinic the *modus operandi* of this class of bad stomachs in an impressive way. He said that food poured into the cecum irritated a pathological appendix and caused pain. The appendix, thus distressed, wired up to the pylorus through the nerve supply, not to dump any more of its chyme down onto it. On receipt of this notice the pylorus contracts, the stomach cannot empty itself.

Hypersecretion, fermentation, irritation, distention, hyper-peristalsis, eructations, a bad breath, coated tongue, gastric distress follow.

A multitude of these patients are treated for months and years for indigestion until a sudden, acute attack of appendicitis makes the case as plain as letters on a box car. The patient then dies from septic peritonitis or is operated on and saved by the surgeon and the dyspepsia is cured. How can we detect these cases early, apply the proper treatment, protect the patients from danger and terminate the invalidism? First, let us inquire for pain at intervals elsewhere than the upper abdomen. Ask the patient to put a finger on the region of pain. Then let us palpate the entire abdomen gently for tenderness and indurations. If the patient flinches when pressed over the appendiceal region, or if we find rigidity of the lower, right rectus muscle, these facts are suggestive. They are below the level of the navel. Pain and tenderness and rigidity at the upper right rectus would suggest trouble with the gall bladder or duodenum.

Some of these appendiceal patients will complain of pain about the navel because the nerve supply to the appendix comes from the same source as the nerve supply to the mesentery. The appendix is sometimes down in the pelvis when the pain will be misleading and this possibility must be kept in mind. In doing a radical cure operation for hernia I recently found the appendix in the scrotum. An appendicitis in this patient would probably have not been correctly diagnosed. A renal colic may be confused with an appendiceal colic or a hepatic colic, but the pain usually starts in the loin and radiates to the bladder, testicle or ovary. The tenderness will likely be below the right short rib. A urinary test will help out the diagnosis. In females I have had diagnoses of appendicitis brought to my clinic when the trouble was clearly in the fallopian tube. There is little excuse for this error for the history of these cases points so directly to pelvic disease and a bimanual examination so readily demonstrates the pathology that no question is left. I have several times found a pus tube firmly adherent to the appendix. These are cases of appendicitis by contiguity. The swelling in and about the tube had pushed it up against the appendix and the infection was communicated by contact. One physician who brought a case of

this kind was much elated to find his diagnosis of appendicitis verified.

Now let us turn our attention to bad stomachs, which have real gastric pathology. I sometimes think that the healing art has brought more comfort to afflicted humanity through the study and treatment of the diseases that manifest themselves conspicuously in bad stomachs than any other field of therapeutics. Most of the best of this work has been developed during the last third of a century—one generation of mankind.

The treatment of direct gastric pathology requires the most painstaking differentiation from the reflex gastric phenomena already considered. About half the bad stomachs are medical and about half surgical. Myriads of blunders have been made by applying surgical treatment to medical cases. The Mayos have cut off more than a hundred gastro-enterostomies which had been done for supposed gastric or duodenal ulcer which did not exist and which of themselves were producing distressing symptoms. Some of these gastro-enterostomies had been done by themselves in their earlier work. Atonic dilatations, gastropareses, and the so-called gastric neuroses, which may be accompanied by dilatation of duodenum, jejunum and sometimes part of colon are medical cases.

Gastro-enterostomies do them no good and sometimes do harm. Gastro-plexy has not met the hopes of its advocates. Nobody seems to know what gastric neuroses are. Acute ulcer of the stomach is a medical condition. Chronic ulcer and carcinoma are surgical diseases and the sooner they are referred to the surgeon the better for the patient. It is not the purpose of this paper to discuss the modern methods of medical or surgical treatment of bad stomachs. It is intended to classify some of them and to point the etiology that underlies each class and also to group the symptoms that serve to identify each class. Neither shall I attempt to differentiate between gastric and duodenal ulcer. The expert diagnostician, Christopher Graham, says "the chief difference arises from the degree in which the characteristic symptoms are manifest." These symptoms are pain midway between the ensiform cartilage and the navel, elicited by pressure and by food. Hemorrhage often appears in the stools or vomitus. In chronic cases we observe symptoms

of obstruction. This is best demonstrated by the x-ray and bismuth test. Distortions from cicatricial contractions are also shown by this test.

Emaciation results and is due mainly to a starvation diet which the patient adopts to escape pain. The relation between food and pain is one of the important diagnostic symptoms of gastric ulcer. It usually appears from one to three or four hours after taking food. In some cases the ingestion of food gives temporary relief from pain. This is especially true if the duodenum is involved. These patients will often get up at night and eat something or drink a glass of milk to stop pain. Later this food causes the return of pain. Hyperchlorhydria is another recognized symptom and we find patients using quantities of soda or calcined magnesia to neutralize the acid. The intermittent character of these symptoms is characteristic and yet in a sense misleading. Patients are supposed to be cured when, in fact, they only have an intermission. I have heard Dr. W. J. Mayo say that gastric ulcers had to be cured nine times by the physician before they were finally referred to the surgeon. This delay is dangerous, because the evidence is growing that chronic gastric ulcer is a frequent cause and forerunner of carcinoma. There is no known method of differentiating chronic ulcer from carcinoma early enough to save the latter by surgical intervention. Even at the operating table early cases of carcinoma cannot be diagnosed without the help of the microscope.

I believe it can be safely accepted as a therapeutic doctrine that medical treatment does little more than secure intermissions in the course of chronic ulcer; but that surgical treatment is curative with few exceptions.

The Mayos declare that gastro-enterostomy for the cure of chronic ulcer, is one of the best operations in surgery. In about 16 per cent of these cases, however, there are complications, such as gall bladder, appendix, tuberculosis, tumor, etc., and these possibilities, including adhesions and distortions, must be kept constantly in mind at the operating table to insure a cure for our patients.

The day has past when the operating surgeon is content to close an abdomen, after having treated the most prominent lesion, without more or less exploration of the viscera for other pathology that may defeat a cure.

CONCLUSIONS:

1. Atonic dilatation is a medical condition.
2. Gastropstosis may be improved by such operations as Beyer's or Rovsing's, but is practically a medical condition.
3. Gastric neurosis, whatever it may be, may have a surgical feature in its etiology, if we can find it, but remains with the medical division.
4. A bad stomach, due to gall bladder disease, is a surgical condition and quite curable in the absence of complications.
5. A bad stomach, due to appendicitis is a surgical condition, quite curable if given the right treatment at the right time.
6. A bad stomach, due to ulcer, is a medical condition, if acute; but a surgical condition if chronic and offers a good field for curable therapeutics in both divisions.
7. A bad stomach, due to carcinoma, is not without hope if we do not waste too much time before applying the only remedy which is radical surgery.

REMOVAL OF TWO NAILS FROM BRONCHI IN CHILD TWO YEARS OLD.*

R. H. GOOD, M. D.
CHICAGO.

A workman while putting up window-shades, left a small box of nails on one of the beds. At three p. m. the mother put the child to bed for a nap, but did not notice the box of nails.

In a few minutes she was startled by a choking sound from the child's room. She quickly entered and found the bed covered with nails and the baby's mouth full of them, which she proceeded to remove.

The mother, however, noticed that the child was not breathing well and in a short time it became blue. She took the patient to a near-by physician and in the act of carrying, the child regained its color. This cyanosis recurred several times before operation.

Dr. J. W. Tope, who referred the case to me, immediately sent the child to the Oak Park Hospital to have an x-ray picture taken. This revealed two nails about 1-inch long, with large heads, one in each bronchus, with heads down.

The heads completely filled the lumen of the bronchi at times which caused the occasional cyanosis. Dr. Tope kept the patient in a tent kept filled with tincture benzoin steam, until the bronchoscopist arrived.

Very little anesthesia was required as the child was partly asphyxiated. The patient was placed in the dorsal position with the head hanging down. A competent assistant held his hand under the neck to alter the position as required by the operator. A nurse supported the head from below.

Brüening's smallest size bronchoscopic tube was introduced until the nail in the right bronchus was visible. A forceps was introduced, grasping the nail and removed by withdrawing the tube with the nail, as the head was larger than the lumen of the tube.

Considerable difficulty was encountered in seeing the nail in the left bronchus on account of some swelling of the membrane, but after applying cocaine and adrenalin together on a swab, I was able to see it readily and could then grasp it with the forceps and remove it.

After removing the first nail the child breathed much better. Twenty-four hours after operation there began to be some difficulty in breathing, due to slight edema of the glottis, but this lasted only for about 36 hours. The patient was kept in the steam tent for two and a half days.

The larynx was sprayed a few times with adrenalin and cocaine; an intubation tube was ready to introduce at any time in case of necessity.

Before operation, the respirations were 66 and the temperature subnormal. After operation there was temperature of about 100 to 101 for four days, after which it became normal, at the end of one week the patient was dismissed perfectly well.

This case is extremely interesting on account of two nails entering the larynx both with heads down. These nails went down separately, as the heads were so large that they could not possibly pass through the trachea side by side. The baby could not have lived much longer as the air from both lungs was shut off.

Several points of importance I wish to emphasize:

First: The necessity of having an x-ray picture taken immediately after the accident.

(Continued on page 300)

*Read before the Auxplaines Branch of the Chicago Medical Society.

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Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

APRIL, 1916

Editorials

THE ANNUAL MEETING.

On the 16th of next month the annual meeting of the Illinois State Medical Society will convene at Champaign. Everything indicates a good meeting, and, no doubt, it will be. Those who attend will feel well repaid, and will most likely attend next year. The majority of those who will attend this year and next were attendants last year. This fact is encouraging to the officers, and is the one thing which shows the Illinois Society to be a success. More prosperity to those who are loyal and do attend.

Each year the Society attendance is some larger than the previous year, and we predict that this year will be no exception. Perhaps this should be sufficient incentive to the officers and apparently it is, but the fact remains that from a society whose membership exceeds 6,500, and which meets but once a year, only about 800 attend, or, in other words, only about one out of every eight members has loyalty enough for the Society to give up two or three days' business.

Each year the officers of the Society do more work for the Society, always effective, but how much more effective would it be if an attendance

at the Annual Meeting would be 3,000, or better still, 5,000, as it should be?

Never before has there been so much work done by the Legislative Committee, and it is showing results; but how much more effective, and how much more energetically could the committee work if the attendance were 4,000 or 5,000 enthusiastic members, showing interest in what was being done?

The Medico Legal Committee's work increases by bounds, and aside from its routine work of defending malpractice cases, it has worked hard to develop a more extensive plan of medical insurance. It would, no doubt, work more cheerfully were it encouraged by a few thousand members at times when a mal-practice suit was not pending.

All of the officers and committees have worked hard for the success of the State Society, and should be encouraged by an appreciative attendance at the Annual Meeting.

The program, printed on page 302, is an interesting one, and not a member of the Society but could be benefited by hearing these papers.

The section on Public Health and Hygiene gave a very interesting program last year and promises better this time. This is the youngest section, but it is becoming popular.

The Eye, Ear, Nose and Throat section has an excellent program that should interest any practitioner of medicine.

The programs for the Medical and Surgical sections are full and promise to be good.

The local committee of entertainment has arranged for the best Champaign can give.

We now appeal to the membership to arrange to be in Champaign May 16 to 18, and assist in making this the best and largest meeting in the history of the Society.

PUBLIC HEALTH SUNDAY AT CHAMPAIGN-URBANA.

The Public Policy Committee, working in conjunction with the Ministerial Union, will hold a Public Health Sunday on May 14th, just prior to the Annual Meeting. This plan was carried out successfully last year, and was very popular. Several speakers are wanted; any of the members who will give a public health talk will kindly communicate with Dr. A. M. Harvey, Chairman,

Public Policy Committee, 836 South Michigan boulevard, Chicago.

ALUMNI LUNCHEON.

Alumni of the Northwestern University medical school will meet at luncheon Wednesday, May 17, at 12:30 at the Country Club, Champaign, Illinois.

CHARLES T. MOSS, M. D.,
Secretary.

CANCER COMMISSION MEETING.

President Lillie announces a meeting of the Cancer Commission, created at the last meeting of the Illinois State Medical Society at the Beardsley Hotel, Champaign, Monday, May 15.

All members of the Society who are interested in the subject of cancer, especially such as have made a bacteriological study of the pathology, are invited.

A NATIONAL BOARD OF MEDICAL EXAMINERS.

In the March number of the ILLINOIS MEDICAL JOURNAL was published a report of a joint session of the Council on Medical Education of the American Medical Association and the Federation of State Medical Boards of the United States, held in Chicago, February 8, 1916. The entire session was devoted to a symposium on "The National Board of Medical Examiners."

That the subject is worthy the time given by any body of medical men, none will deny. There are few questions of more moment to the medical fraternity, and sooner or later, a method must and will be accepted, whereby the certificate of a graduate of medicine, passed by any licensing board of the several states, will be accepted by any other state, and perhaps by the Army or the Navy. The sooner this condition is brought about the better.

There should be uniformity in all examinations for licensure, and these examinations should be of high grade, and free from all question of dishonesty. Just what plan for National Licensure is best, or will eventually be adopted, is difficult to determine, and the medical fraternity should be alive to the subject, and ready to accept and

support an efficient method, or to oppose and reject one adverse to the profession.

We do not agree with the statement made by Dr. Rodman, of the impossibility of having a uniform standard when fifty states have licensing boards.

At this meeting the plan proposed was to have a national board—a voluntary organization—to hold examinations for the voluntary applicants, who applied for examination, and those passing such examinations to be given a national license. The board as constituted is to be composed of six members from the Army and Navy and eight others. Just why this apportionment, we do not know.

The Chairman in his opening address stated, "We cannot have a compulsory national board since the police powers are with the state." This statement, we think, is true, and if true, then it is useless talking or working for a national board.

The profession at large does not want a self-appointed voluntary board, examining voluntary applicants. There must be but one method of entrance to the practice of medicine, and that method should in some way admit all licentiates to practice medicine, throughout all the possessions of the United States.

Just why we should have another class of physicians, those licensed by this voluntary board, has not been explained, and the result, if this voluntary examining board comes into existence, will be just one more licensing body, with no actual authority. One reason given for the need of such a board was that we now have too many licensing bodies.

We are heartily in accord with the idea of a Federal licensure, if it is possible to obtain it, or a license from individual states which will be accepted without question anywhere within the jurisdiction of the United States; but whatever form national licensure takes, it must be a legal one; must be mandatory for all practitioners, and must not be a semilegal function performed by a self-appointed few.

ILLINOIS SOCIETY FOR THE PREVENTION OF BLINDNESS.

As we go to press we receive notice of the campaign by the Illinois Society for the Prevention of Blindness in which the medical profession is

expected to play the leading rôle. The JOURNAL has noticed from time to time the activity of Dr. Thomas A. Woodruff and others, who have been actively associated with this movement. The Society has recently secured for secretary Miss Carolyn C. Van Blarcom, who for some years has held a similar position with the national committee for the Prevention of Blindness.

The address of the Illinois Society is 30 North Michigan Boulevard, Chicago.

DR SACHS' FAREWELL.

To the People of Chicago: The Chicago Municipal Tuberculosis sanitarium was built to the glory of Chicago. It was conceived in the boundless love of humanity and made possible by years of toil. No institution was ever planned more painstakingly, or built more honestly. Every penny of the people's money is in the buildings, equipment and organization.

The city council of Chicago should make a most thorough inquiry into the entire history of the institution, and the community should resist any attempt of unscrupulous contractors to appropriate money which belongs to the sick and the poor. Unscrupulous politicians should be thwarted. The institution should remain as it was built; unsoiled by graft and politics—the heritage of the people.

In the course of time every man and woman in Chicago will know how Dr. Sachs loved Chicago, and how he has given his life to it. My death has little to do with the present controversy. I would not dignify it. I am simply weary. With love to all,

THEODORE B. SACHS.

WINE OF CARDUI SUIT.

The suit of the proprietors of Wine of Cardui against the American Medical Association for \$300,000 for alleged libel is a subject of interest, not only to the medical profession, but to the much larger class of people who have a taste for liquor and scruples against patronizing an ordinary "gin mill." The numerous witnesses testifying as to the qualities of this medicine are creating such a demand for it that no meal will be complete without a bottle of this alleged wine.

Miss Grace Gilbert, head of the advisory de-

partment of the medicine company, testified that she sent out form letters on information taken from the "Home Treatment Book," which was written by A. E. Wheatley, general advertising counsel for the concern. Neither one of these experts is a graduate of any medical school.

Correspondence

CHAMPAIGN COUNTY, THE BIRTH-PLACE OF STATE MEDICINE IN ILLINOIS.

To the Editor:

Comparatively few of the present generation of medical men know that Champaign county enjoys the distinction of being the birthplace of State Medicine in Illinois. But such is the fact.

The sixty-sixth annual meeting of the Illinois State Medical Society will be held May 16, 17 and 18, 1916, in Champaign City, the twin sister of Urbana, where precisely forty years before, on May, 16, 17 and 18, 1876, the twenty-sixth annual meeting was held, and during which the urgent need of placing on the statute books a medical-practice act and organizing a State Board of Health, was freely discussed and carefully considered. Finally on the last day of the session it was,

Resolved, That a committee be appointed to memorialize the next legislature on the subject of the appointment of the State Board of Health; and with proper modifications the act by which the Board of Massachusetts was inaugurated be submitted to the same as a basis for the Illinois board.

Resolved, That as members of the State Medical Society, each one shall consider himself bound to urge the propriety of a State Board of Health upon the representative from his district.

The memorializing committee was made up as follows: Dr. E. W. Gray, Bloomington; Dr. Wm. Chambers, Charleston; Dr. S. H. Birney, Urbana; Dr. Wm. Massie, Paris, and Dr. E. B. Haller, Vandalia.

The committee did its work well and at the ensuing (1876-7) session of the legislature an approved medical act passed both houses, was signed by Governor Cullom and speedily became a law of our commonwealth.

"There were giants in those days," and in at-

tendance upon the historic twenty-sixth annual session were such men as Drs. N. S. Davis, Edmund Andrews, John H. Holister, Moses Gunn, W. H. Byford, etc., from Chicago; and Drs. T. D. Washburn, A. T. Darrah, E. B. Haller, E. W. Gray, Wm. Massie, J. W. Whitmire, et al., from down state.

But since that day in the long ago time has been busy working its many changes and of the hundreds who participated in the era-making work of the twenty-sixth annual session few, very, very few, remain to tell its story.

From the foregoing it will be seen that from the standpoint of State Medicine, Champaign county is historic ground.

So much for the "dead past." Now a word for the "living present." Champaign county physicians are striving to make the sixty-sixth annual session of the Illinois State Medical Society the "biggest and best" in its history, and—they are going to do it!

Although the forthcoming meeting will be held in Champaign City, yet Urbana, her twin sister, will, with "heart and soul," strive to make the session a success, just as forty years ago, Champaign was "heart and soul" with Urbana.

CHAS. B. JOHNSON, M. D.

Champaign, Ill., March, 1916.

Public Health

EPIDEMIC OF TYPHOID FEVER AT MOLINE.

A VALUABLE LESSON TO HEALTH AUTHORITIES.

The State Board of Health reports that at the present time there is an epidemic of typhoid fever in Moline, which is peculiarly instructive to public health authorities. The epidemic, which involves about fifty cases, is now fortunately under control and is being thoroughly studied by the city health officer and the city chemist, with a view to determining all of the factors involved, so that they may be in a position to protect the city from similar visitations in the future.

While the investigations are not yet completed, several significant facts have been established:

1. A vender of bottled water, owing to the failure of his deep well supply on account of pump troubles, is reported as having filled his bottles with water from a badly polluted shallow well. Three cases are said to be definitely traced to this polluted water and a number of other cases in all probability are due to the same cause. Not only did typhoid fever result, but in one factory where the vended water in question is the only water used for drinking purposes

there resulted a large number of cases of gastrointestinal disturbances. A bit of evidence confirmatory of the theory that the vended water is at fault is the case of a typhoid fever victim who drank boiled city water exclusively at home and the vended water exclusively at the factory.

2. Seven cases were traced to the use of unpurified Mississippi River water taken from points below sewer outlets at a factory. This factory has a dual system of water supply—one for drinking purposes, obtained from an artesian well yielding a water of unquestioned purity, and the other taken from the river for industrial purposes. As some of the pipes carrying the artesian water are placed close to steam pipes, this water at times becomes warm and unpalatable and the factory operatives resort to the cooler and more palatable but dangerously polluted river water. This is not a new cause of typhoid fever, inasmuch as it has been definitely fixed as the cause for an epidemic of typhoid fever at Lawrence, Mass., and as a partial cause of former prevalence of typhoid fever in Youngstown, Ohio.

3. One of the factories in Moline has a fire fighting system, deriving its water supply both from the polluted Mississippi River below sewer outlets and also from the public water supply mains. The only barriers against the entrance of polluted river water into the city mains is a single swinging check valve. Among engineers it is well known that such check valves frequently get out of order and in point of fact an epidemic involving over ninety cases of typhoid fever was traced to a defective swinging check valve on a fire fighting system at Lowell, Mass., and the weight of evidence indicates that at least a large portion of the typhoid fever during the disastrous epidemic in Rockford, Ill., in February, 1912, was due to a similar defective swinging check valve.

4. The public water supply of Moline is filtered and the process of filtration is customarily supplemented by sterilization with hypochlorite of calcium. As a result of the war in Europe the price of hypochlorite has been advanced from 1¼ cents per pound to over 13 cents per pound and at the present time is not procurable at all. As a result of this situation the hypochlorite supply at the filter plant was exhausted during the latter part of January and for about two weeks dependence was placed on the filters solely. As the filters are somewhat overburdened and as the plant is not adapted to treatment of the highly turbid and polluted Mississippi River water, without the assistance of sterilization, the filter plant did not operate up to a proper efficiency. The bacterial counts in the filtered water sometimes were as high as 500 or 600 per cubic centimeter, whereas, a maximum of 100 is generally regarded as a proper standard. On the other hand, the filtered water showed the presence of the colon bacillus (indicative of sewage contamination) on but one day and those in charge of the filter plant, therefore, felt no great alarm, though they were apprehensive. The investigations thus far made have not revealed definitely

that the public water supply was responsible for any cases of typhoid and the further investigations now under way should prove of interest in this connection. The public water supply, however, is now safe, due to the fact that there has been installed suitable equipment for the application of liquid chlorine, an even more effective sterilizing agent than is hypochlorite of calcium.

Perhaps the most striking lesson of this epidemic thus far revealed is the advantage of having a competent city health officer and a competent city chemist equipped to make prompt investigations upon the outbreak of an epidemic of typhoid fever. As a result of their efforts the epidemic was unquestionably checked and the causes are being ferreted out so that the city need not be subjected to the same dangers in the future.

VENDED WATERS TO BE INVESTIGATED BY THE STATE BOARD OF HEALTH.

The epidemic of typhoid fever in Moline, which is discussed in another item in this issue, calls forcible attention to the danger lurking in the use of bottled waters not subjected to inspection. The general public is in the habit of placing blind faith in the sanitary quality of waters sold in bottles. A little thought, however, will reveal that the operation of bottling, even supposing the source to be pure, subjects the water to most of the dangers inherent in the preparation and sale of milk. At the present day there is hardly a man, woman or child who does not recognize that milk, in order to be safe, must come from clean dairies where extraordinary precautions are taken to prevent contamination and most health departments provide elaborate machinery for the inspection and control of the milk business. Vended waters, however, go along unmolested and a catchy name and an attractive legend on the bottles seem to give the public sufficient assurance that they are getting a pure and unpolluted product.

The danger from vended waters is not new to sanitarians, for mere observance of the handling of bottles will convince any one familiar with the manner in which water becomes contaminated that many of these vended waters must be polluted. Moreover, an investigation by the Massachusetts State Board of Health some fifteen years ago indicated that over 50 per cent of the vended waters as delivered to the purchaser in that state were contaminated, though a very much smaller percentage was found to be polluted at the source.

A marked increase in public interest concerning sanitary matters has no doubt stimulated greater care on the part of venders of bottled waters in maintaining their sources of supply free from contamination and their bottling works in cleanly condition. Nevertheless, fragmentary evidence that comes to the attention of the State Board of Health from time to time indicates quite clearly that there is still much room for improvement.

As soon as practicable, the present status of vended

water in Illinois will be canvassed by the new engineering bureau of the State Board of Health, not with a view of antagonizing the business, but with a view to securing the co-operation of persons and companies engaged in selling bottled water, to the end that the well-conducted establishments may be certified by the State Board of Health as offering for sale a product that meets proper sanitary demands.

AN ENGINEERING CONFERENCE OF GREAT SANITARY IMPORTANCE.

Under the auspices of Professor F. H. Newell, head of the civil engineering department of the University of Illinois and formerly director of the United States Reclamation Service, there was held at the university on March 8-10 a conference on drainage. Authorities on the subject of drainage presented at this conference a number of papers dealing with surveys, preparation of plans and specifications, drainage legislation, soil fertility, drainable land, laying of drain tile, excavating machinery for drainage ditches and a number of other topics, but throughout the conference one of the dominant notes of the discussion was the effect of drainage on public health.

There was one paper devoted entirely to the relation of drainage to the public health, which began with the statement that "there is no field of engineering endeavor that is of such great importance to the human inhabitants of the earth as drainage engineering." The paper then called attention to a statement made a year or so ago by General W. C. Gorgas, to the effect that, with proper drainage, backed by efficient sanitary administration, there are no tropical countries that cannot be made comfortably habitable for people of the temperate zones and that this possibility is of inestimable consequence to mankind, inasmuch as it means that the most fertile and productive areas on the globe can be developed to the fullest extent, whereas now they are left practically untouched.

As a concrete example of how drainage projects may be carried out for profit and for health in the latitude of southern Illinois there was described a large drainage project to the southward of Louisville, Ky., which eliminated malarial fever from the entire district, made possible the installation of sewerage systems and increased property values within the drained area by approximately \$3,000,000, or 7.7 times the actual outlay for doing the work.

Discussions brought out the fact that there is still a great deal of malaria in Illinois, which claims, in the aggregate, many lives annually. While the percentage of fatalities from malarial fever is not great, as compared with other diseases, whole populations are affected so that their efficiency as useful citizens is reduced as much as 40 to 90 per cent. The elimination of malaria, therefore, has a tremendous economic value, which should be added to the increased value of the reclaimed land when computing the profitableness of drainage undertakings.

At the closing meeting of the conference resolutions were adopted for promoting the reclamation of land by drainage and flood protection. Prominent among these resolutions were two which dwelt on the immense importance of drainage to the public health and called upon the State Board of Health of Illinois to use its authority to the utmost toward guiding drainage development along lines that will best promote the interests of public health.

A HEALTH SURVEY OF WHITE COUNTY.

The Illinois State Board of Health publishes in the February number of the *Health News* the advance pages of a health survey of White County, made during the past year, through the cooperation of the State Board of Health with the Illinois State Association for the Prevention of Tuberculosis. The field work for the circular was carried out by Dr. I. A. Foster, medical inspector for the State Board of Health, and Miss Harriet Fulmer, R. N., at that time extension secretary of the State Tuberculosis Association.

White County is one of the smaller counties in the state located in the far southern part of Illinois and bounded on the east by the Wabash River, which separates it from the state of Indiana. The facts brought out in the White County survey are of vital interest to the large group of physicians and laymen of that county, through whose interest the survey was originally made, but the publication of these facts will also be of the utmost importance to many of the counties of the entire southern section of Illinois, since the conditions which prevail in White County are characteristic of the counties situated in that part of the state.

Sanitarians and social workers who have looked over the advance proofs and manuscripts of the White County Survey are impressed that this is one of the most useful contributions to the sanitary development of rural communities made up to this time any place in the country.

White County was accorded a population of a little over 23,000 in the 1910 census and covers an area about 25 miles long and 20 miles wide. In the ten townships of the county there were located last year 128 persons with more or less advanced tuberculosis and it was found that there had been 64 deaths from that disease during the years 1914 and 1915.

The field work of the survey was approached through the public schools and, by interesting the children of the county, it was made possible to secure accurate information relative to home and general living conditions.

Among the most interesting facts elicited was the extent to which the older families of the county had intermarried and, since the population of the county had received relatively few new recruits within the past generation or two, it was found that some of the children were related to the large majority of the persons living in their neighborhoods or townships.

The fact of this consanguineous marriage upon the physical make-up of certain of the residents of White County is a question for interesting speculation.

The White County Survey was undertaken at the request of residents of the county. While the investigators frankly pointed out the shortcomings of certain communities in the county, the tone of the survey report is distinctly helpful and the reader is reminded that similar shortcomings are to be found not only in numerous counties in Southern Illinois, but are more or less common to the rural communities throughout the entire state.

With its general constructive purposes the survey report recommends definite changes and improvements, the most important of which are:

1. The construction of modern school buildings and the establishment of central schools in the various townships to take the place of the numerous one or two room schools now scattered throughout the county.
2. Medical supervision of the health of school children.
3. The employment of a county nurse or nurses working especially in the public schools.
4. The employment of a salaried health officer.
5. The improvement of the privies and vaults used throughout the county and a higher degree of protection of private and public water supplies.

As a result of the interest created at the time the survey was made there has been organized the White County Public Health Council, made up of the most prominent physicians and laymen in White County. This organization is now in active existence and through its energies it is anticipated that a county visiting nurse will soon be employed. Through the survey there were also organized in most of the schools of the county branches of the Illinois Open Air Crusaders—groups of school children all of whom have signed a pledge to observe the most important rules of health.

There was a time when the various communities would be disposed to more or less resent the frankness with which the survey report deals with the weaknesses and shortcomings of health administration, but within the past few years it has been recognized that the city or county which has made an intelligent study of its existing conditions stands head and shoulders above the other communities surrounding it. No community will make material progress until it is armed with the truth about itself. White County is exceedingly fortunate in having this intelligent survey made of its conditions and the county is likewise fortunate in having within it intelligent and progressive physicians and laymen, who have not only invited such a study, but who have manifested a disposition to act effectively upon the facts brought forth.

TUBERCULOSIS NOTES.

Defective teeth in all cases of pulmonary tuberculosis should be remedied as a part of its regular treatment. The constant absorption from diseased

teeth tends to lower the vitality and resistance of the patient.

Neuman (*Zeitschrift fur Tuberkulose*, Dec., 1915) recommends the use of calcium salts and the intravenous injections of 10 per cent. sodium chlorid as the most satisfactory method of treatment.

Federal control of tuberculosis is urged by the National Association for the study of the cure and prevention of tuberculosis.

There are three types of tuberculin reactions which should be kept in mind—local, focal and general.

Tuberculin should never be used as a method of treatment where the patient is not under absolute control. Failure to observe the patient continuously while under tuberculin treatment accounts for most of the failures by this method.

Never make a diagnosis of tuberculosis unless absolutely sure, but endeavor to make the diagnosis early enough to make treatment of value.

DO YOU KNOW THAT

Four per cent of the inhabitants of certain sections of the South have malaria?

The United States Public Health Service has trapped 615,744 rodents in New Orleans in the past 18 months?

The careless sneezer is the great grip spreader?

Open air is the best spring tonic?

Typhoid fever is a disease peculiar to man?

Measles kills over 11,000 American children annually?

There has not been a single case of yellow fever in the United States since 1905?

There is no federal institution in the continental United States for the reception and care of lepers?

Plague is a disease of rodents?

Malaria is spread by a special mosquito?

House screening is a good disease preventive?

Fingers, flies and food spread typhoid fever?

The United States Public Health Service believes that the common towel spreads trachoma, a disease of the eyes?

Children from sanitary homes advance more rapidly in school than those from dirty premises?

Hundreds would never have known want if they had not known waste.

Folks who never do any more than they get paid for never get paid for any more than they do.

Never marry but for love, but see that thou lovest what is lovely.

When you get into water, keep your mouth shut.

Instead of letting the fly "get" our young, let us teach our young to "get" the fly.

IODINE IN ACUTE AND CHRONIC GONORRHEA.

Dr. Gerald Beyler calls attention in *Gazette des Hopitaux* of March 19, 1914, to the rapidity with which, in his own experience at least, colloidal iodine checks gonorrhea and, seemingly, completely eradicates the disease.

"Iodine," he says, "is an admirable antiseptic, efficacious not only against the gonococcus, but also (a very important point) against the pathogenic organisms which cause secondary infection (streptococci, staphylococci, etc.), and which often keep up an interminable suppuration after the gonococcus has disappeared. Its great power of diffusion renders it very valuable in reaching the micro-organism in the glandular pockets of the urethra, in which it so often settles."

But ordinary iodine has its drawbacks: it is caustic, irritating and toxic, and cannot therefore be used for urethral injection. Turning to *colloidal* iodine, he finds in this the ideal agent for the treatment of gonorrhea, since it can be injected into the urethra and the bladder, and be applied topically, without the slightest risk.

"After from eight to ten days' treatment all the gonococci and other germs disappear and the persistent discharge, even though of microbic origin, rapidly dries up."

REMOVAL OF TWO NAILS

(Continued from page 293)

Second: That the picture should be taken by the best x-ray apparatus obtainable, with sufficient current to make picture in not longer than 1/10 to 1/5 of a second. Short exposures are absolutely necessary for finding foreign bodies in the lungs, on account of the extensive movement of this organ during respiration. The patient should fill lungs and hold breath when the exposure is made.

Third: That an x-ray be made in all doubtful cases of foreign bodies in the lungs or esophagus.

Fourth: That the foreign body be removed as soon as possible.

Fifth: That more laryngologists should learn to do endoscopy as more of these cases can be saved.

Sixth: No one should do bronchoscopy without having taken a thorough course and then practice considerably on dogs.

Seventh: There is absolutely no advantage in doing a tracheotomy in these small children, but on the contrary many disadvantages, the mortality being much greater.

7 W. Madison Street.

Auto Sparks and Kicks

FUEL AND THE FUTURE.

Whatever may be the truth as to the necessity for the present price of gasoline, the fact is abundantly clear that the law of supply and demand necessitates a price considerably above that of a few years ago. In other words, the supply of gasoline as originally obtained by very easy methods is lessening.

Kerosene today is a drug on the market—it is almost a waste by-product—and commercial common sense will compel its conversion to some useful end.

Meanwhile, however, it is not wise to put off consideration of the direct use of unconverted kerosene in automobile engines. There is no impossibility in a kerosene carburetor.

Hitherto the thing which has acted most against the kerosene carburetor is this very detail: that it cannot be handled *precisely* like a gasoline carburetor. Added to this is the second fact that it is difficult to obtain very slow speeds with the heavier fuel. These things are not serious. Today the advantage of a much cheaper fuel is sufficient to make it worth while to have a little more elaboration in the carburetor system. The truck, at all events, can be converted easily, for it does not need the same refinement of performance as a high grade touring car.—*Automobile*.

80 PER CENT. OF FUEL NOT VAPORIZED.

The trouble with motor cars today in the hands of the public, using low volatile gasolines, is that but 10 per cent. of the gasoline used is vaporized, 10 per cent. partially atomized and 80 per cent. of the liquid actually goes into cylinders as raw liquid. There is not time in high speed engines for all this liquid oil to be transformed from liquid to vapor, or gas, before the dead center of the piston, and any flame which develops after the piston starts to fall, adds little if any power to the crankshaft, although it does burn up the oil. To that extent it is wasting valuable fuel oil, due to the low volatility of oils of today being used in engines designed for highly volatile oils.—W. P. D., New York.

TRY KEROSENE MIXTURE.

Would you kindly advise me as to whether the Schebler model L carburetor on my Overland

model 59 would handle kerosene as a fuel or not? Would any change be necessary? I have been thinking that I would reduce the tension on the auxiliary air intake valve spring. Would this be advisable or not? I am going to fit a small tank on the dash of the car to supply gasoline for starting.—R. W. C., Vineland, N. J.

You will very likely find the carburetor will operate well on a half and half mixture of kerosene and gasoline. Some engines run well on this mixture though not all. It will probably need more air. You would be well advised to fit the small tank for starting purposes.

SPARKLETS.

A motor will start more readily in cold weather if without turning on the spark it is cranked two or three times with the throttle wide open; then close the throttle until it opens about an eighth from its shut position, throw in the switch and with but few exceptions the motor will start on the spark.

With some engines it is difficult to start without opening the throttle to a position which will cause the engine to race as soon as it gets started. It is very annoying and embarrassing to crank an engine, and have it speed up with a roar, before one is able to get back to throttle it. Careful adjustment of the carburetor will in nearly all cases make it possible to start on a fairly well closed throttle. If not, the engine can be started without this racing by cranking it a few turns with the throttle wide open and the spark off, then partly closing the throttle and cranking with the spark on.

When a tire is completed it is free from moisture on the inside and it remains so as long as the tread is in condition to perform its full duties. Small cuts, however, caused by sharp objects in the roadway, are very apt to appear, even in a new tire, and through these openings water eventually finds its way to the tire carcass. In time this produces separation of the individual plies of fabric of which the carcass is made up, and the tire rapidly goes to pieces. Breaks in the treads also admit sand and dirt, which cause fabric separation.—*Auto Trade Journal*.

Society Proceedings

Illinois State Medical Society

ANNUAL MEETING AT CHAMPAIGN

MAY 16-18, 1916.

PRELIMINARY PROGRAM.

This list of papers is incomplete. A revised list with names of speakers will be published in the May JOURNAL.

Angina Pectoris—with report of cases.

Medical Legislation—Recent and Contemplated.

Efficiency in Medical Practice.

The Influence of Mixed and Secondary Infections in Pulmonary Tuberculosis in Man.

Malignant Endocarditis.

Therapeutic Starvation in Infancy.

A Clinical Study of Pneumonia—With special reference to Prognosis.

The Clinical Significance of Vicarious Gastrorrhagia—A Consideration of Five Cases.

Radium Therapy—Remarks on the use of radium in deep seated Malignant disease and in Dermatology. (Illustration with lantern slides.)

ORATION IN MEDICINE.

The Medical Mechanism for War in the United States.

Surgery of the Colon.

Mechanical Kinks of the Back.

Facia Transplantation.

Surgery from the Patient's Viewpoint.

Appendicitis from the Standpoint of the Ordinary Surgeon.

Military Preparedness from a Surgical Standpoint. Experience as Post Surgeon at Camp Tanner During the Spanish-American War.

Symposium:

(A) Splenectomy in Pernicious Anemia.

(B) Splenectomy in Peculiar Types of Splenomegaly.

Traumatic Hernia.

Management of Empyema in Children.

X-Ray Interpretation.

Value of X-Ray in Differential Diagnosis in Gall Bladder Lesions.

Survey of Opinions and Experiences in First Aid.

Convalescent Hospitals: Their Economic Value.

The Health Department Under the Commission Form of Government.

The Importance of Germ Carriers in the Propagation of Diphtheria.

The Classification of Medical Colleges and Its Effect on Medical Education and the Medical Profession in America.

An Epidemic of Typhoid Fever, Due to the Use of Polluted Water Supply at Old Salem Chautauqua.

Raw Oysters as Carriers of Typhoid Fever Infection.

Sanitary Legislation, Recent and Contemplated.

The Preparation and Use of Vaccines in Chronic Bacterial Infections.

Chronic Appendicitis from the Standpoint of the Internist.

Importance of Infections Originating in the Post-nasal Space in Infants and Children.

EYE, EAR, NOSE AND THROAT SECTION

1. Two Years' Clinical Experience on the Trachoma Question in Southern Illinois.—Edward E. Edmondson, Mt. Vernon, Ill.
2. Experimental Reproduction of Accessory Sinus Suppuration for Teaching Purposes.—M. F. Arbuckle, East St. Louis, Ill.
3. The Capsule of the Faucial Tonsil, Its Structure and Significance.—Elmer L. Kenyon, Chicago.
4. Corneal Ulcers and Their Treatment.—Wesley Hamilton Peck, Chicago.
5. Consideration of the Recognized Operative Measures on the Nasal Accessory Sinuses.—Author to be announced.
6. Circular Plastic Operation for Cicatricial Ectropion, a New Operation.—E. F. Snyder, Chicago.
7. The Diagnosis of Disorders Affecting the Perceptive Organs of Hearing.—Otto J. Stein, Chicago.
8. Symposium on Penetrating Injuries of the Eye-ball:
 - (a) Diagnosis.—Casey A. Wood, Chicago.
 - (b) X-ray, Value of in Localization of Foreign Bodies in Eye-ball: with Demonstration and Stereopticon Slides.—Dr. Wells, Chicago.
 - (c) Treatment.—Harry Woodruff, Joliet.
 - (d) Pathology of Infections Complicating; Exhibition of Specimens and Stereopticon Slides.—Francis Lane, Chicago.

9. Some Tonsil Observations.—Frank Buckmaster, Effingham.
10. Metallic Drainage for Glaucoma.—Arthur Prince, Springfield.
11. Prognosis and Treatment of the Common Intro-Cranial Lesions Complicating Nose, Throat and Ear Infections.—Norvall Pierce, Chicago.
12. Value of the X-ray in the Diagnosis of the Affections of Nasal Accessory Sinuses and Mastoid with Demonstrations and Stereopticon Slides.—Geo. Shambaugh, Chicago.
13. Diagnostic and Prognostic Value of Visual Fields; with some Suggestions in Technique.—George F. Suker, Chicago.
14. Comparative Value of Direct and Indirect Laryngoscopy and Bronchoscopy.—Stanton Friedberg, Chicago.
15. The Treatment of Strabismus in Children. J. Whitefield Smith, Bloomington, Ill.
16. Common Focal Centres of Metastatic Infections in the Upper Respiratory Tract.—W. J. Ridout, Freeport.
17. Post Nasal Cauterization in the Treatment of Chronic Constriction of the Eustachian Tubes, with Reports of Cases.—Alexander S. Rochester, Chicago.
18. Review of the Principal Operative Measures Advocated for the Removal of the Faucial Tonsil.—A. B. Middleton, Pontiac.
19. The Value of Diagnosis in the Treatment of Nasal Conditions.—C. H. Long, Chicago.
20. The Detection of Malingerers of Deafness, with Demonstrations of Instrument.—Carl B. Wagner, Chicago.

COOK COUNTY

Chicago Medical Society

Regular Meeting, March 1, 1916.

1. Report of a Series of Cases of Trichinosis, with Remarks on Diagnosis, Leon Bloch. Discussion: Maxmilian Herzog and Arthur F. Beifeld.
2. Recognition and Treatment of Ruptured Ectopic Gestation, E. E. Montgomery, Philadelphia, Pa. Discussion: J. Clarence Webster, Carey Culbertson, J. B. DeLee, Hugh N. MacKechnie, Channing W. Barrett and Henry F. Lewis.

Regular Meeting, March 8, 1916.

1. Toxemia in Its Relation to Dementia Praecox. Discussion: Geo. W. Hall, Chas. E. Fischer, Edward H. Ocksuld and F. P. Machler.
2. Physical Findings in Spinal Fluid in Various Diseases, Abraham Levinson. Discussion: Julius H. Hess.

Joint Meeting of the Chicago Medical and Chicago Neurological Societies, March 15, 1916.

1. The Newer Conceptions of the Neuroses: An Estimate of Their Clinical Value, Sidney I. Schwab, St. Louis, Mo. Discussion: Hugh T. Patrick and H. Douglas Singer.

2. Some Modern Views of Syphilis of the Nervous System, Archibald Church.

3. Selected Chapters on the Treatment of Nervous Diseases, Julius Grinker.

Joint Meeting of the Chicago Medical and Chicago Roentgen Societies, March 22, 1916.

1. Pulmonary Abscess and Its Roentgen Demonstration by Invitation, P. M. Hickey, Detroit, Mich. Discussion: Frederick Tice and Charles Louis Mix.

2. Spasms of the Stomach and Duodenum from a Roentgenologic Viewpoint. By invitation, R. D. Carman, Rochester, Minn. Discussion: Arthur J. Carlson and Joseph C. Friedman.

3. (a) Some X-Ray Observations in the Diagnosis of Certain Chest Lesions; (b) A Diagnostic X-Ray Sign of Erb's Paralysis. By invitation. Sidney Lange, Cincinnati, Ohio. Discussion: Hugh T. Patrick and M. Milton Portis.

Regular Meeting, March 29, 1916.

1. Thoracic Surgery, Howard Lilienthal, New York, N. Y. Discussion: A. J. Ochsner, John Ritter, Carl Beck and T. A. Davis.

2. Antidotes in Mercuric Chlorid Poisoning: An Experimental Study (Lantern Slides), Bernard Fantus. Discussion: Hugh McGuigan and Thomas A. Carter.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting, held November 16, 1915, with the president, Dr. George W. Boot, in the chair.

CASE OF HYPOPHYSEAL DISEASE.

Dr. Otto J. Stein exhibited a patient upon whom he had operated for disease of the hypophysis by the trans-nasal-sphenoidal route. At the time of the operation her vision was practically nil; she was obliged to have someone lead her about. This, with the severe headaches and vertigo, constituted the chief subjective symptoms. The symptoms, from a pituitary gland standpoint, were the typical Froehlich's syndrome: Thirty-three years of age; married; no children; menstruation ceased at 23 years; adiposity—weight, 245 pounds; skin dry; hair scanty; polyuria; functionless genital organs; infantilism; no sugar; negative Wassermann; blood pressure, 125 systolate; no motor paralysis; no Romberg; reflexes reduced. The Hirsch technic was followed in operating. No particular difficulty was encountered in reaching the gland; the floor of the sella was removed, allowing the adenoma to present into the sphenoid sinus. No gland tissue was removed. All the symptoms quickly disappeared after this, and have remained absent during the year following the operation, and at this

time the patient has recovered practically all of her sight.

CASE OF RHINOPHYMA.

Dr. Stein exhibited a case of rhinophyma. This condition usually occurs in those who are exposed a great deal to the open air in all kinds of weather, that is, in engineers, firemen, conductors and motormen, drivers and teamsters. There is frequently an element of force back of it. This man noticed it after blowing his nose violently, when something seemed to give way. He felt a dilation of the vessels. He had a slight rhinitis at the time, just as many of these cases have. After this he noticed the enlargement. Then the lobulated masses began to form. The nose feels soft.

In the differential diagnosis one thinks of rhinoscleroma, but when touching the nose and examining its interior you notice the difference. This condition is nothing but a hyperplasia of the skin.

The dermatologists attribute all of these cases to an acne, but this is denied by the rhinologist. In the case shown, there was no history of acne, and no evidence of it about the man now. The condition starts with a hyperemia, which disappears easily on pressure in the first stage. In the second stage there are enlarged vessels and veins, and, finally, these small masses of tissue, which they say is nothing but hyperplasia from the sebaceous glands, later forming lobulated masses, until they deform the nose and pull it down. The third stage is much rarer than the other two (which are quite common) and has never been recognized in women.

DISCUSSION.

Dr. Joseph C. Beck, referring to the case of rhinophyma, recalled a case which he and Dr. Friedberg had seen, which was even more extensive than the one presented. This tumor hung down over the mouth. The patient was a man, about sixty-five years of age. The operation, which was followed by an excellent result, consisted of a decortication of the whole area of the nose involved; then some skin from each side of the nose and face was brought together, to cover the defect. It made a pinched nostril, but the result has been satisfactory and there has been no recurrence. The growth was removed right down to the cartilage. Kaposi has reported this as necessary in these cases, so that no vascular and verrucous structure will remain.

Dr. Beck thought the result in Dr. Stein's hypophyseal case was excellent.

Dr. Stein, in closing the discussion, said he intended to perform the decortication operation in the case of rhinophyma. Dr. Beck said that in his case he took off the skin down to the cartilage. Dr. Stein would think that a faulty thing to do, because you have to depend upon skin formation. You should leave a little layer of skin for proper epidermization. If you take it all off, you get scar tissue contraction, unless you do a skin-grafting or draw the skin from the neighboring parts over the raw surface. If you are going to allow it to heal without any grafting, it is a mistake to cut so deep. You have got to carve it out as a sculptor would carve, with a razor, and dissect all around the cartilage, but always leave a little skin underneath for healing. With this method he is led to believe that the results are very good.

Dr. Beck said he was afraid he had been misunderstood. Unless you remove the growth down to the perichondrium, there is a recurrence, and the nose must be immediately covered. He did not leave the nose exposed, nor did he do any skin grafting, but he made a dissection from the side

of the face in the forms of flaps and brought them together over the tip of the nose, so that the nose was covered with healthy skin. To carve out this tissue and leave some of the skin would prove futile, according to authorities.

CARCINOMA OF THE ANTRUM.

Dr. George W. Root presented a patient with carcinoma of the antrum. He lost his eye four years ago from an accident, and before he had any symptoms of cancer. He came to Cook County Hospital three months ago, complaining of right-sided nasal obstruction, and wanted something done to relieve his breathing. There was a large polypoid mass present, which the speaker removed through the nose. The carcinomatous process evidently began in the antrum. A Denker operation was then planned to relieve the nasal obstruction, a radical operation being out of the question, since the growth extended across the median line in the roof of the mouth. When the external wall of the antrum was exposed it was found destroyed to such an extent that a curette could be easily introduced. The interior of the antrum was thoroughly curetted out, the internal and external walls and much of the floor of the antrum being removed. The patient then left the hospital, but returned a day or two ago in the condition presented. The cheek is much thickened with the growth. The hard palate is much infiltrated and the infiltration extends almost across the roof of the mouth. In the speaker's opinion, the growth is absolutely inoperable. He is receiving Coley's serum and is being treated by the x-ray, but with little hope of accomplishing any permanent good.

SUSPENSION LARYNGOSCOPY, WITH REPORT AND PRESENTATION OF CASES.

Dr. Joseph C. Beck said that suspension laryngoscopy means the direct inspection of the larynx without the employment of any mirrors, the patient lying prone on the table, with his head free. This inspection is elicited by a specially constructed tongue depressor; at the distant end of its handle is a hook, which fits into a notch on the cross-bar of the additional apparatus, called the gallows. The cross-bar can be raised or lowered as well as brought nearer or farther by the examiner, thus exposing any or all parts of the larynx. Dr. Beck reviewed the progress of this method of examination from the first description of Killian to the present day, mentioning the work of Lynch, of New Orleans. He had his associate, Dr. H. L. Pollock, demonstrate the method on a patient, and showed other accessory instruments employed in the procedure. He called attention to more than twenty different pathological conditions in which he employed it, on more than two hundred and fifty cases—in some cases as often as twenty times. He has been using this method for the past three years, with excellent results, and no untoward effects. It may be used under either local or general anesthesia. Some of the conditions of the larynx and mouth in which he has employed it are: Adenoma, fibroma, myxofibroma, angioma, papilloma, carcinoma, syphilis,

tuberculosis, rhinoscleroma, septic perichondritis and abscess, cicatricial stenosis from burns and other trauma, intubation, foreign bodies, chronic hyperplastic laryngitis, atrophic laryngitis, bronchiectasis and bronchorrhea, tongue conditions, as cysts, abscesses and tumors, hypopharyngeal condition in region of pyriform fossa, enlarged thymus diagnosis, substernal thyroid, paralysis of laryngeal muscles, esophagus conditions. He also called attention to some of the difficulties encountered, one of which was slipping of the tongue to one or the other side of the depressor or spatula; another, the nervousness and irritability of some patients, no matter how thoroughly cocaineized; still another, the disagreeableness of the method to some patients.

The value of the new method lies in being able to see things as they are; the precision in removal of the growth—no matter how small; and the fact that the gagging is practically done away with. Trouble will also be encountered if one attempts to suspend a patient who has no upper teeth, or perhaps one central incisor, or if the teeth are loose, as, for instance, in pyorrhea alveolaris. Another trouble he had in cases of ankylosis of the cervical vertebra or lower jaw being unable to bend the head back and open the mouth sufficiently.

Dr. Beck then reported four interesting cases: 1. Papilloma, ending fatally; 2, adenocarcinoma, apparently cured; 3, angioma, followed by aphonia and subsequent recovery; 4, sarcoma, followed by bleeding stopped by intubation. He also presented eight cases in which he employed this method in diagnosis and treatment, as follows: Internal or accessory thyroid gland at base of tongue. Impossible of suspension, but successfully operated on by external pharyngotomy. Fibroma the size of a pea, showing very accurate removal and perfect voice in a man whose voice is of great potential value. Three cases of laryngotracheal stenosis, requiring laryngotomy as a cure: One syphilitic, one giant hypertrophy of mucous membrane, secondary to suppurative sinus disease, and one scleroma associated with the rare disease of scleroderma of the hands and feet. These were shown in the three stages of the operation.

Dr. Beck also presented a man with laryngeal stenosis that requires a permanent tracheotomy. Such patients, if they wish to utter sounds, must place their finger over the mouth of the tube, which is embarrassing and keeps men from obtaining satisfactory employment in many instances. The speaker devised an attachment to any tracheotomy tube which will enable the individual to open and close the opening without being noticed, and thus speak. This consists of a flexible rod within a flexible cable sheath. At one end is a sliding shuttle, and at the other end a spring compression and release button. This latter end, with the spring compression and release button, is kept in the patient's pocket.

DISCUSSION.

Dr. S. A. Friedberg referred to certain points in the technic. When the instrument is introduced the tooth-holder and spatula are very close together. This prevents satis-

factory illumination of the lower part of the pharynx and epiglottic region. If care is not used in manipulation one may get an edema of the epiglottis and ary-epiglottic folds, or if too long a spatula is used, there is the possibility of it going back of the arytenoids into the mouth of the esophagus. Any unnecessary or excessive manipulation in the supraglottic region is very apt to cause an edema. He has found this to be so, particularly in children with multiple papilloma of the larynx, in using the simple direct method in operation. This brings up the question that if we are to use this instrument in children, particularly in cases of multiple papillomata, whether or not it is advisable to do a preliminary tracheotomy. Dr. Beck had referred to the difficulty experienced in suspending some cases, and this reminded the speaker of a case which he and Dr. Beck had tried to suspend a few days previously. In this case there was a diffuse papilloma, involving one cord, with aphonia of a number of months' duration. There was complete anesthesia, but it was impossible to keep the spatula in place on account of the gagging reflex. After several attempts they were obliged to desist. It was interesting to note that immediately following the suspension operation efforts the respirations went up to about 36 a minute. The patient was very dyspneic; pulse about 160; she could not breathe very well lying down and had to sit up in bed. A sedative was given and the next day she was in very fair condition. On looking into the larynx the next day no evidences of traumatism were to be seen. There was considerable swelling of the vocal cords, with whitish exudate over the false cord, showing that the tip of the spatula must have come up over the vocal cords, producing this traumatism. The larynx was also deeply injected.

Dr. J. Holinger drew the attention of the society to several publications reporting great relief of the attacks of bronchial asthma after cocaineization of the bifurcation of the trachea by means of tracheoscopy.

Dr. S. A. Friedberg wished to add one more point in regard to the use of anesthesia in these cases. In any operation about the respiratory tract the use of prolonged anesthesia is dangerous. That has been found out, especially by those doing bronchoscopy work. During the last few years he had seldom used cocaine, as that is a danger that should also be recognized. In using an excessive amount of cocaine we are apt to have a dangerous complication, as has been pointed out by Dr. Ingals. Dr. Beck had asked Dr. Friedberg why he did not use this method in foreign body work. He has not felt the necessity, because it may be managed so easily the other way. At least, that has been his experience, and he believes Jackson inclines to the same view. One objection to the method described by Dr. Beck is that, in cases of unruly children, an anesthetic must be given in order to accomplish anything. In passing the bronchoscope, without the use of suspension, this is not necessary.

Dr. George W. Boot called attention to two points in the report. First, amputation of the epiglottis for tuberculosis or other condition is very easy under suspension laryngoscopy. Second, in cases where edema of the larynx is feared following suspension laryngoscopy, it is advisable to do intubation as a precautionary measure. The speaker has seen papilloma of the larynx cured by wearing the intubation tube alone. It ought to be still more efficient after removal of the papilloma.

Dr. Beck, in closing, showed another case, in order to illustrate how well the patient could speak. Speech is the essential thing in these cases. This patient was very hoarse when he first consulted the speaker. He had a fibroma on the cord, a good-sized growth, not as large as a pea, but just about that form. It dropped subglottically and would not come up readily. It looked like a little polyp and was situated anteriorly. This growth was removed by the suspension method described.

Dr. Beck wished to make a strong plea, based upon his experience, for the use of this method for small growths, in accurate removal.

Dr. Boot spoke of intubation and that is what the speaker had wished to, say in answer to Dr. Friedberg's remarks. He has done that after removal of papillomas in children,

sc as to avoid the possibility of edema. He likes to use thacheotomy in papillomas in children for a longer period, because it prevents their recurrence, to some extent, and is considered good treatment.

Morphin is an excellent thing in these nervous patients and hyoscin, which the speaker used, as well as scopolamin.

If Dr. Beck were to try suspension again on the patient referred to by Dr. Friedberg he would give her morphin and atropin or hyoscin to get her quiet. He has found that this inability to suspend some cases is more of a mental condition. He did not see any exudates, but the fact that there was some trauma in this case should not deter anyone from the use of the method in other cases. The thing to watch out for is the trauma of the arytenoid by too long a spatula.

The speaker did not know of the articles referred to by Dr. Holinger, namely, the treatment and cure of asthma by one application of cocaine. That is worth while trying.

A SUGGESTION REGARDING THE RINNE TEST.

Dr. Robert Sonnenschein said that the Rinne test, as ordinarily applied, consists in placing a fork, preferably the A' (435 double vibrations), on the mastoid process and when it is no longer heard, holding it near the auditory meatus. Rinne himself placed the fork on the incisor teeth. When the air conduction is longer than bone (which is the normal finding), we have a positive reaction; when the bone conduction is the longer, the Rinne is negative.

Bezold showed many years ago that in the normal case, with positive Rinne, the air conduction exceeds that of bone by about twenty to thirty seconds. When, however, the fork is made to vibrate and held only before the ear, without being first in contact with the mastoid, the duration of hearing is considerably greater than otherwise. This is due to the fact that pressure of the stem of the fork against the bone lessens its duration of vibration, and we then do not get an accurate idea of the real length of hearing by air conduction. It has also been shown that in doing the usual Rinne test, after the fork is no longer heard on the mastoid, and then no longer appreciated by air, if the stem be inserted in the auditory canal, the sound is again heard.

According to Bezold, the actual duration of hearing by air conduction could only be determined if it were possible to approach the drum-head as closely with the prongs as with the stem of the fork.

It has for some time been my custom in testing patients by the Rinne method not only to use the usual routine of comparing the bone with the air conduction, but to again excite the fork and test the hearing by air alone.

Let it be said that this variation is only of use where the Rinne is positive, for in the negative reaction the length of air conduction has been noted before the fork is placed on the mastoid. In the second place, it is, of course, very important that the fork each time be made to vibrate with the same intensity. This is done by using a uniform method which consists in allowing a pleximeter to fall by its own weight from the perpendicular position, thus giving each time practically the same impact.

For the purpose of this paper, a series of fifty cases (25 pathological and 25 normal ones) was ana-

lyzed. Of the 100 ears thus examined, it was seen that the excess of hearing by air alone, as compared with that in the regular Rinne, averages 13 seconds. In the pathological ears this average was 10.7 seconds; in the normal ones, 15.2 seconds. The least difference was 5 seconds; the greatest, 30 seconds.

The percentage of increased air conduction was 28; in the pathological cases, 27; in the normal ones, 29. There is thus very little difference between the reactions in the normal and pathological cases that were tested.

Even though the value of this suggestion may be more academic than practical, it is suggested that in each case the Rinne test be done in the ordinary manner, and when the fork is no longer heard, that the stem be inserted into the meatus and the excess of hearing noted. Then let the fork again be struck and the air conduction alone determined. This accurate testing may lead to important findings with the examination of a large number of cases.

DISCUSSION.

Dr. Alfred Lewy said to avoid misunderstanding and confusion, the result of the Rinne test should be written as an equation, showing both the bone and the air conduction in seconds, not merely "positive" or "negative" and the normal time for the fork used should be stated.

Dr. George E. Shamhaugh was pleased to listen to this discussion of the functional hearing tests, especially because this important part of otological work is the one most frequently gone over carelessly. An experienced otologist is often able to make a tentative diagnosis with a good deal of accuracy from the history the patient gives. But a positive diagnosis of the type and degree of deafness can only be determined by carefully carried out functional tests. Taken alone, the Rinne test is much more valuable than either a Weher or the Schwabach test, but even the Rinne test cannot be relied upon by itself to make a diagnosis in all cases. It is important here, just as in much of our work, to have a regular method of procedure and to run through a number of the more important functional tests in every case where the diagnosis is in doubt. A positive or a negative Rinne is often a relative affair, and it is only by studying this test in connection with the others that an accurate conclusion can be reached regarding the cause of the deafness. A shortened positive Rinne may have the same significance as a negative Rinne, and in advanced unilateral nerve deafness a negative Rinne on the affected side has the same significance as a positive Rinne does in most cases.

Dr. J. Holinger did not think that Dr. Sonnenschein's modification of Rinne's test ought to be encouraged. It does not give us anything materially new; is likely to make our statistics worthless and consumes time.

Dr. George W. Boot thought functional testing of the ear is apt to be slighted. Several years ago he was in a clinic in Philadelphia, where they had one tuning fork (laughter). In another clinic they had three or four forks and an old-fashioned Galton whistle. In one New York clinic they had a set of Bezold tuning forks, but did not use them. In this connection he wished to call attention to the little book by Sonntag and Wolff on "Funktionsprüfung des Ohres." It not only gives the methods of making the tuning fork tests, but the tests of the vestibular system as well, and all in very compact form.

Dr. Sonnenschein, in closing the discussion, said that the fact that many forms of Rinne test are found is not the point at issue. From the purely scientific side it is interesting to determine the real duration of air conduction. This may lead to a better understanding of some of the functional tests, as did experimenting with the monochord throw new light on the hearing of high tones. In any case, carrying out the test as suggested in the paper requires but very

little extra time and may in the end be productive of valuable results

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of Dec. 20, 1915—Continued.

When the patient consulted Dr. Pratt the second day after leaving Dr. L., there was intense pain around the right eye; the iris was adherent to the lens in the position in which it was now found, which was about the size of a normal pupil. A little below the center of the pupil was a well defined deposit in the anterior third of the cornea, about 2×1 mm., with the axis perpendicular, and looking very much like a corneal abscess. It was cut down upon and found to be a yellowish-white tissue. There was hardly a haziness of the cornea around it. There was lachrymation and photophobia, and intense pain at night which was due to the iritis present, and which subsided after using atropin (2 per cent) at home every four hours, and atropin and dionin powder once a day at the office. Under this active treatment the iris still remains fixed. The patient states that for one week of the time he was with Dr. L. he did not go to bed on account of the intense pain.

November 22 the patient was taken to the National Pathological Laboratory in Chicago; the cornea was opened and the tissue scraped, but the findings were negative. Wassermann finding was negative.

The deposit has now assumed a pear-shape with a diameter of 2 mm. each way, so that it is gradually enlarging. The cornea is also becoming hazy around the deposit. The inflammatory symptoms are mild and the patient sleeps well at night.

Dr. Pratt brought the case before the Society for advice and diagnosis.

DISCUSSION.

Dr. Oliver Tydings recalled having a case many years ago of primary melano-sarcoma of the cornea in which the iris was invaginated. In the case reported by Dr. Pratt he understood there was no wound. The corneal tissue is not prone to malignancy, and personally he would continue the treatment the doctor had been giving, namely, atropin, dionin and heat to see if the case did not improve.

Dr. George F. Suker asked what the microscopic findings showed.

Dr. Pratt replied that they were absolutely negative. New tissue had taken the place of corneal tissue. It was increasing in size and the haziness of the cornea and around it is becoming greater, although the man sees better because the iris is drawing away in the upper part.

TUBERCULOSIS OF THE EYE; WITH SPECIAL REFERENCE TO TREATMENT

Dr. W. E. Gamble stated that the general surgeon's routine practice of a decade ago, of removing tuberculous tissue wherever found possible (joints and glands), has given place to a more conservative treatment, owing to the fear of general dissemination of the disease. Ophthalmologists have learned that operations involving the inside of the eye, as iridectomy, to remove tuberculous foci in the iris, are not only dangerous

to the eye, but to the life of the patient. Von Hippel would only undertake extraction of secondary cataract when the tuberculous eye has been free from irritation for two years. In the presence of glaucomatous increase of tension, if the use of myotics does not suffice, he considers Elliott's trephining less dangerous than iridectomy as being an operation of less magnitude and not so likely to occasion scattering of the bacilli.

In the diagnosis of tuberculosis of the eye the ability of the ophthalmologist to see the pathologic changes makes the diagnosis much easier than in other parts of the body. The clinical picture is often all that is necessary to make this complete, as tubercles in the choroid or nodules in the iris; yet there were occasionally obscure cases the nature of which we are unable to make out with the ophthalmoscope, aided by the history of the patient.

In the early days of the use of tuberculin most ophthalmologists saw untoward results from the diagnostic dose. The author saw a patient put to bed for several days from its use (4 mg. O. T.), and indeed several weeks passed before patient fully recovered. If these transitory symptoms were the only harm produced by this reaction, we would not be disturbed by the fear of its use; but there is accumulating evidence that these pronounced reactions are liable to cause general dissemination of the bacilli. This danger is greater in cases with tuberculous cavities and large tuberculous areas in the organism outside of the eye.

The focal reaction can best be studied in tuberculosis of the iris and consists in hyperemia of the blood vessel about the tubercular nodules, ciliary injection, especially in the region of the involved area.

Tuberculous foci of a chronic type occur in the sheaths of the nerve also and may be manifested in the eye in three forms, as a neuroretinitis not unlike albuminuric neuroretinitis, as an optic neuritis, and as a retrobulbar neuritis.

The acuity of vision of the affected eye in optic neuritis or neuroretinitis of suspected tuberculous origin, may aid in differentiating between involvement of the sheath of the nerve and of the septa in the nerve itself. In the former the reduction will not be great. In the writers' cases the vision was 20/20, in the other 20/40, while in the latter the reduction would be greater. The field of vision may be not only a means of determining whether the foci are in the sheath or in the nerve itself; but may also aid in locating the anatomical portion involved.

Tuberculosis of the eye may exist without focal reaction being produced by tuberculin, even in doses of 10 mgs. Von Hippel enucleated an eye full of tuberculous masses, yet a general reaction to old tuberculin was only obtained at the sixth injection of 5 mgs. Derby remarked that in a very considerable number of cases the desired

reaction does not occur. This is in accordance with the experience of the writer.

The knowledge that by well regulated diet, clean air and rest, a general resistance to the tuberculous process may be acquired, has given the profession the most potent weapon in the fight against this disease. General resistance comes slowly after weeks and months of treatment. In tuberculosis of the eye much harm, and often destruction of this organ, results before this is acquired. Fortunately, we possess in tuberculin a means of inhibiting the progress of the disease and curing it in many cases.

Among seventy-five cases of tuberculosis of the iris and ciliary body, relapses occurred in 15, and at intervals of from three months to three years after the end of the first course of treatment. In 115 cases of tuberculosis of the cornea there were 12 relapses. In 18 kerato-iritis, 3; in eighteen cases of conjunctivitis there were two relapses. There were no relapses in cases of the sclera or choroid. The total number of relapses was 32 out of 243 patients. A long interval must elapse before one is justified in considering tuberculosis of the eye definitely cured.

Tuberculin in large doses produces a definite action upon the tuberculous area. Cumulative evidence seems to point to the fact that this is, at most, only of secondary therapeutic importance; but that the important curative effect lies in establishing an active immunity against the disease.

DISCUSSION.

Dr. William H. Wilder said the essayist had wisely called attention to the danger that might result from the diagnostic use of tuberculin, for all had been instances where tuberculin had been used indiscreetly. It would seem, however, if certain precautions were observed, the danger might be comparatively insignificant. Too frequently the observer, thinking the case to be one of tuberculosis of the eye, resorts to the diagnostic use of tuberculin without first having made a careful physical examination of the patient. Such an examination should be complete enough to exclude other possible causes of inflammation of the eye, such as foci of infection in teeth, tonsils, prostate, etc.

It stands to reason that there will be great danger in the use of diagnostic doses of tuberculin if the patient has an actual cavity in the lungs, or shows an active tuberculous process in the joints or vertebrae or elsewhere. Such possibilities should be borne in mind. Furthermore, it is indiscreet to administer diagnostic doses of tuberculin without having a normal temperature record for several days preceding the use of the first dose.

He thinks that if such precautions are observed there will be fewer accidents to record and fewer cases in which the eye trouble is aggravated.

Again, there are certain conditions in the eye that may be recognized clinically as tuberculous in which it may not be necessary to administer the diagnostic dose of tuberculin, except possibly as confirmation of one's suspicions. Such are certain choroidal conditions, certain conditions of the cornea and sclera like sclerosing keratitis, kerato scleritis and inflammation of the iris in which tuberculous masses may be actually seen.

Unfortunately for our diagnosis these well defined clinical

cases are not as numerous as the more obscure ones, in which we desire to get the help that comes from the diagnostic test with tuberculin.

As to the administration of the diagnostic dose of tuberculin after the patient has been prepared for it by a careful physical examination and a few days' test of the body temperature, he thinks in the very large majority of cases we are safe in administering one-half milligram of old tuberculin. Koch himself advised the use of one milligram as the initial dose.

If this produces no general nor local reaction and no rise in temperature, it should be followed in twenty-four or forty-eight hours with a dose of three milligrams. If this produces no general nor local reaction nor rise of temperature, a final dose of five milligrams may be given in twenty-four hours, and if no reaction follows, the assumption is that no active focus of tuberculosis is present. If, however, there is a distinct reaction at the point of puncture, the evidences of local or general reaction should be looked for very carefully and a rise of temperature of one degree or even less may be very suggestive, so that the next dose, if one is given, should be smaller than originally planned.

If a local reaction occurs in the eye with the suspected lesion, it will manifest itself by ciliary injection or an increase of it if ciliary injection was already present. Unfortunately, in many cases where this test is made, the eye is already so inflamed that it is difficult to detect the difference in the redness that might be caused by the local reaction and hence the value of the test is more or less problematical and we must reason from the general reaction that the eye lesion is probably tuberculous. The previous exclusion of an active tuberculous lesion by physical examination is, therefore, of great value.

One important point to remember in connection with the tuberculin test is the possibility of anaphylaxis. If one waits for a considerable time between the initial and the second dose, the patient may show an anaphylactic reaction. For this reason it is wise to proceed within forty-eight hours if necessary with the administration of the second dose, and then within twenty-four hours or thirty-six hours the third dose to avoid the danger of anaphylaxis.

Dr. George F. Suker said in reference to certain forms of parenchymatous or phlyctenular keratitis and nodular or phlyctenular conjunctivitis of low grade in which the physical findings are not marked, no diagnosis of tuberculosis should be made without a complete physical examination, this to include a skiagram of the chest. He has on many occasions had chest skiagrams made of children and young adults in whom there was but a faint suspicion of tuberculosis and found enlarged peribronchial glands. When such patients were subjected to the tuberculin test they usually gave a marked reaction and many times locally. And, under the tuberculin treatment, these cases made a good recovery. We should resort to the diagnostic tuberculin reaction test only at the very last—only when all other aids for a diagnosis of tuberculosis fail.

These low grade tuberculous inflammations of the conjunctiva and cornea do not always show the tubercle bacillus, but are the result of the toxic agent of tuberculosis engendered somewhere in the body. In the absence of the bacillus in the eye lesion the tuberculin test does not always give a local reaction.

In reference to the therapeutic dose of tuberculin in the treatment of these cases he believes in giving small doses and only increasing same when no temperature reaction follows the injection. The interval between injections must not be too short—usually one injection a week is sufficient in conjunction with the other measures employed.

Dr. E. K. Findlay saw the cases of tuberculous optic neuritis referred to by Dr. Gamble and was deeply impressed with the result of the tuberculin treatment. His attention was called to the pronounced reduction of sight that followed a large dose of tuberculin in the case of optic neuritis. Since that time the speaker has never found any focal reaction in a number of cases in which he has given tuberculin. He

was pleased that the essayist had given definite directions regarding the size of the diagnostic dose, as there was so much confusion on that point. The remarks regarding standardizing the various preparations on the market deserve consideration, as the inert preparations may account for many of the discouraging results that have followed this method of treatment.

Dr. L. W. Dean, of Iowa City, Iowa, said that whenever it is necessary to make tuberculin tests it is quite essential to have made first a thorough systemic examination. All of his patients needing tuberculin tests are taken as house cases, whether they are private or clinic patients, and kept in the hospital for three or four days.

Previous to the tuberculin tests a complete systemic examination is made by a competent internist. This obviates the danger of a serious reaction because of gross pulmonary or other tubercular lesion. His procedure with this class of cases is as follows: First, the sinuses, nose and throat are carefully examined, then the teeth are looked after by a dentist. The patient is then placed in the hands of the internist and examined by him before the tuberculin test is applied, the internist determining whether it is safe to make the tuberculin test or not. With the completion of the general examination the patient has a second careful examination of the eyes and if advisable the tuberculin tests are applied.

In many cases it is necessary to have a careful examination of the prostate, bladder and kidney.

In a number of cases the cause of the trouble has been located by the genito-urinary specialist. Unfortunately, even with clinic patients in Iowa it is difficult to get a very complete cystoscopic examination made because of objections on the part of the patient. Some of our patients have even refused treatment before they would undergo this examination.

Dr. Dean mentioned several instances where in the presence of positive Wassermann reactions with positive tuberculin reactions the patient has only done well with the use of the tuberculin therapy.

Dr. Oliver Tydings expressed himself as being fully in accord with Dr. Dean in insisting on making a more thorough examination of everything possible. It is necessary to make these investigations, particularly with regard to the condition of the sinuses, and teeth and the intestinal tract in cases of luetic infection.

With regard to some of the manifestations of tuberculosis of endogenous origin, such as phlyctenules and scleritis and conditions within the globe producing retinitis proliferans, etc., due to endotoxins, he is fully in harmony with Dr. Wilder along that line.

As to the use of tuberculin in the various conditions, since the introduction of tuberculin in this country he has used it extensively. He has heard the warning of physicians in cases in which it can, and in cases in which it should not, be used; that it must not be used in fevers or in hemorrhagic conditions, and great care must be exercised in using it, nevertheless he has used it in hemorrhagic conditions of the lung; he has used it in fevers and in similar conditions, and he does not know of any condition which is due to a tubercular process in which the judicious use of tuberculin is not beneficial. He has never seen any ill results from the judicious use of it.

He has had two cases of anaphylaxis following the use of tuberculin, but these occurred in days when very little was known about the use of tuberculin, and these cases occurred in forty-eight hours of one another. Both of them were alarming for a time, and were the only two cases he has seen.

Dr. Michael Goldenburg related his experience experimentally with tuberculin five or six years ago, when phlyctenular disease was thought to be due to tuberculosis. He used then the Von Pirquet reaction and got a positive reaction in nearly

every case, and concluded then that he could get that sort of reaction with other microorganisms made by the same process, such as the colon bacillus and staphylococcus. He made two Von Pirquet's and one colon vaccination, and the peculiar thing was he only had a reaction from the tuberculin and no reaction in the other. He did the same thing with the staphylococcus and got the same results. He then consulted a number of bacteriologists in Chicago, who thought probably he did not use the proper organism; that he should use an organism that has an intracellular secretion and suggested the use of the Klebs-Loeffler bacillus or the streptococcus, so he had this made up by the same process. He used these organisms in a great number of cases and did not get a reaction in any of them, but did get a reaction with the tuberculin.

While he is inclined to think the Von Pirquet reaction is of value, yet at the present we are unable to interpret the picture presented with any degree of value from a practical standpoint. According to some authorities, Wolf Eisner and others have on several occasions dissected out these tissues and have found a typical tubercle, tubercular caseation, giant cells and surrounding infiltration.

Dr. Richard J. Tivnen reiterated the remarks of Dr. Tydings relative to tuberculin, which is a very potent agent. He agreed with Dr. Dean that the patient should undergo a complete physical examination before subjecting him to the diagnostic dose of tuberculin and subsequent therapeutic treatment.

So far as the reactions are concerned, local and focal, general or constitutional, he has not had very many focal reactions. He had occasion to study a series of phlyctenular cases five years ago, and he then used the Von Pirquet test, and like Dr. Goldenburg, he had obtained a large number of positive responses to this test, but only a very small number of focal reactions.

In his judgment phlyctenular disease is a tubercular process. The syndrome these cases present is classical of the tubercular process. The crux about phlyctenules which causes trouble is their recurrence, and he thinks tuberculin is as useful in controlling these recurrences as any agent at our command. If he were asked what was the most important agent in the treatment of tuberculosis, not only in the eye, but in general work, he should put at the head of the list tuberculin. However, in the use of tuberculin the greatest care should be exercised, particularly with reference to the variations in the temperature curve, both before administering the diagnostic dose and during the therapeutic course of treatment. As to the dose itself, it is safer to banish the notion of these being a definite dose and rather individualize. Great wisdom should be shown in the selection of cases. The product is extremely important. He has used mostly the Lucius and Brunning product, which is quite generally employed. He had enjoyed Dr. Gamble's instructive and scientific paper very much indeed.

Dr. Gamble (in closing the discussion) said that the danger of dissemination of tubercle bacilli from the use of tuberculin is causing a reaction against its use in phthisis pulmonalis, and in tuberculous cavities in other parts of the body. Diagnostic doses cause an increase of tuberculous areas in the lungs, as shown by radiograms taken before and after subcutaneous injection. Tubercle bacilli are seen in the sputum after injection when not found before. It is in small isolated foci, as in the eye, that this treatment is of undoubted value and has come to stay.

Werli a few years ago demonstrated that the appearance of tubercle bacilli in chronic tuberculosis varies from that of the acute type. He spoke of them having a granular appearance. He devised a different stain by which he could identify them.

The author has never had anaphylactic symptoms from the use of tuberculin.

(To be continued.)

EFFINGHAM PHYSICIANS' AND DENTISTS' CLUB

Meeting held Feb. 11, 1916.

Meeting was called to order at 8 p. m., Feb. 11, in the office of Drs. Goodell, by President Bellchamber.

Dr. Wettstein read the scientific paper of the evening on "Hypertrophy of the Prostate Gland." Embryology and anatomy of the organ was briefly reviewed, stress being laid on the view of Sir Henry Thompson, Freyer and others that the middle lobe proper is a pathological product. That because of the direction of least resistance the prostatic enlargement extends upward, the urethra being carried with it, its inner orifice being raised to successively higher levels, above the base of the bladder, forming a pouch which carries an increased amount of residual urine as the trouble progresses, the early compensatory hypertrophy of the bladder, as the obstruction progresses, giving way to one of weakness, relaxation and decreased expulsive power, until finally the bladder may carry immense amounts of residual urine, the overflow escaping by dribbling. The bladder becomes trabeculated, unduly thinned in patches, which may become the site of diverticuli, sometimes of enormous size. The prostatic urethra becomes lengthened, flattened, tortuous or otherwise changed in accordance with the size and character of the prostatic overgrowth. Importance was given the fact that prostatic hypertrophy is not a physiologic or normal condition dependent on age, but strictly pathologic, the enlargement being a fibro-myomatous process, an adenomatosis, or an adenoma proper and not infrequently malignant. Ureter and kidney changes are common in the course of the obstruction. Due importance was given to the early symptoms, nycturia, retarded starting of the flow with diminished force of the stream, dribbling at the end of the act, etc., which being progressive, should always lead an early diagnosis; however, these symptoms do not proceed directly from the prostatic pathology, but from interference with bladder function. The bladder being merely a storage organ with power completely to empty itself at will, has this even tenor of its ways interfered with, and just in proportion to this interference by the progress of prostatic changes will symptoms develop and harass the patient up to the point of complete abeyance of the emptying power of the bladder, succeeding progressive complications, and death.

Under diagnosis, it was urged (a) that after the patient voids urine, a catheter be passed into the bladder, to ascertain the amount of residual urine, (b) that a painstaking digital examination of the prostate and its surrounding area be made with the patient in the knee chest position and again by the same means, with the patient in a comfortable dorsal position, with bladder empty, a bi-manual examination (with one hand above the pubis) be made, as with a bi-manual examination of the uterus, the latter frequently giving a better idea as to the general size of the prostate as the former is frequently deceptive in that it does not

reveal the real, but only the apparent size of the gland, as enormous masses projecting bladder-ward may not be appreciated properly at all by the usual digital-rectal examination alone. Besides size, the finger studies the comparative consistency, tenderness, irregularities, nodulations, general contour, etc., of the two lobes and no examination is complete without these methods. (c) Cystoscopy was urged as a valuable diagnostic measure, one which enables the examiner to see the gland from the bladder side, to study its size contour, peculiarities of development, surface changes, and the secondary bladder changes as well as of much importance in the pre-operative study. It was also shown that a small prostate of distorted or peculiar pathological contour may seriously interfere with bladder function.

In the pre-operative examination and preparatory treatment it was urged that the mechanically obstructed bladder is not the only feature of the case to be considered, but that the observation should be general, neglecting no part of the body. These patients are old, frequently more or less completely incapacitated by the urinary obstruction, retention and consequent general intoxication and chronic septicemic state which sooner or later supervenes. Contra-indications to operation, from the nervous system, heart and vessels, blood and general, as well as from other possible special states, should be excluded.

Then the kidney function is to be ascertained as completely as present methods will afford. Neglect of the last is criminal, as this detail has made it possible to bring the mortality rate much below that of the time when this was not done. After taking a complete inventory of the general condition of the patient, and of each system in particular, and finally as detailed and exhaustive an examination of the urinary system and functions as present methods afford, the risk is selected and the real preparation for operation begun under hospital regulations and observations. All deficiencies and abnormal conditions and states are corrected as far as possible.

The progressive urinary intoxication and resultant chronic bacteriemic or septicemic state must be abated largely to make a safe risk. This is done by preventing urinary retention, by the use of retention catheters, irrigations, the use of cultures of lactic acid bacilli in the bladder and general and special measures as indicated. These measures then will lead in the more important risks to the next preparatory step for prostatectomy, supra-pubic cystostomy under local anesthesia and bladder drainage until such time as it seems safe to complete the prostatectomy. This operative bladder drainage makes it possible for many patients to recover who would die promptly after the one stage operation.

DISCUSSION.

The discussion was general and exhaustive. The principal points emphasized were:

1. That the process of enlargement of the prostate is not physiologic, and necessarily concomitant to advancing years, but that it is pathological; hence the term senile hypertrophy as applied to the prostate is misleading.
2. That the result of the activating process of these tis-

sues varics; that it may result in an encapsulated adenoma proper, but much more frequently in hyperplastic states of the (a) chronic irritative, (b) fibro-myomatous, or (c) diffuse adenomatous (adenomatosis) types, and not uncommonly, in the (d) irregular, atypical, embryonal or malignant type of hyperplastic or neoplastic growth. The histopathology and the more or less uncertain pathologic differentiation of these various processes was gone into fully.

3. That the troublesome symptoms are not due primarily to the prostate, but secondarily to the urinary blockade.

4. That the mortality of operative treatment depends largely on the pre-operative preparation, it being true that most of these cases enter the hospital late. The determination of renal function as one step in the selection and preparation of these risks has been the greatest factor in reducing the post-operative death rate. The second factor of importance in reducing the post-operative death rate is bladder drainage and irrigations, at times the retention catheter method being ample, but in doubtful cases, by the two-step operation, i. e., opening into and draining the bladder from below or above, followed by a removal of the prostate through the same opening, at the second sitting. The importance of the vascular and nervous systems, general intoxications, infections, etc., were also emphasized as of importance in the preoperative study and preparation.

Following the discussion, it was moved, seconded and passed that a committee of three be appointed by the chair to arrange for a banquet for the members and their wives or lady friends, at the expense of the general fund of the club. Drs. Buckmaster, F. W. Goodell, and F. N. A. Hoffman were appointed. Dr. Hoffman then suggested that the next meeting be devoted to a consideration of the proposed new office building, which was accordingly arranged.

Adjourned.

F. BUCKMASTER, Secretary.

Meeting held Feb. 25, 1916.

The Effingham (City) Physicians' and Dentists' Club meeting, Feb. 25, 1916, at City Hall.

President Bellchamber opened the meeting at 8:15 p. m.

Dr. Hoffman discussed the idea of a co-operative office building primarily for and by the doctors, but including other professions and office men as well. He demonstrated the plans of a two-story building consisting of thirty-six large, airy office rooms, on the two floors, the wide hall extending throughout the building on each floor, serving as the common reception hall for all private offices. The building corporation to furnish the offices with hot and cold water, light, heat, telephone, janitor service, lady attendants for the reception halls, a common laboratory for the physicians and dentists, and a large library room for the legal profession on the second floor.

It was shown that this co-operative plan would save the doctors and dentists much expense money each year, on office, etc., alone, as well as to bring them into one common building under a co-operative plan of economics and ethics which would undoubtedly materially increase the percentage of collections of each; as the doctors' and dentists' office expenses are equal to the interest on a sum probably much above \$100,000. The lawyers and other office men's office expenses are likewise disproportionate to the accommodations received. Many other points were brought out favoring such a plan, especially from the economic

advantage of the doctor. But two members spoke discouragingly of the plan.

The attorneys and the secretary of the Merchants' Association favored the plan very much. At the close of the discussion Drs. Hoffman and Buckmaster and Attorney Frank Taylor were appointed by the chair as a special committee to further the plan and to report at the next meeting, March 10.

Adjourned.

F. BUCKMASTER, Secy.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met in regular session at Carrollton, Ill., Feb. 11, 1916, at the Illini Club. Called to order at 11:30 a. m., by the president, C. R. Thomas.

Sixteen members were present. Visitor, T. J. Pitner of Jacksonville, Ill.

The minutes of the previous meeting were read and approved. Communications from Dr. J. A. Day and Dr. C. D. Center were read and ordered filed.

The following resolution, read by H. W. Chapman, was unanimously adopted:

Resolved, That the efforts of Dr. C. St. Clair Drake, Secretary of the State Board of Health, to secure an amendment to the Medical Practice Act, whereby reciprocity may be established with other states, by which all physicians regularly licensed to practice medicine in this state may be permitted to participate are hereby most heartily endorsed by this society as an act of simple justice to the profession of this state; be it further

Resolved, That a copy of this resolution be forwarded to Dr. Drake, and also to our state senator and representatives, and that the latter are hereby most earnestly urged to work and vote for this amendment.

Dr. Hensler stated that Dr. Vedder, president of the Greene County Dental Society, proposed a joint meeting for discussion of subjects in common and on motion Dr. Vedder was invited to come to the session and present the matter.

The following resolutions, recommended by the president of the Illinois State Medical Society, approved by the resolution committee, L. O. Frech and R. O. Hawthorne, were unanimously adopted:

The Greene County Medical Society branch of the Illinois State Medical Society at a regular meeting on February 11, 1916, unanimously adopted the following resolutions:

WHEREAS, The President and Honorable Secretary of War have announced in the public press that a scheme for the reorganization of the army will be presented to Congress at its coming session, which will materially increase the military establishment, and

WHEREAS, We recall the indignant protests and criticisms of the nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

WHEREAS, It is known that this failure was due to

the lack of a sufficient number of medical officers in the regular army and a means for increasing the medical establishment at the outbreak of war, and

WHEREAS, In spite of the lessons of the Spanish-American War, which were fresh in mind in the reorganization of the army in 1901, the Medical Department was not properly increased and no provision was made for its expansion in time of emergency, and

WHEREAS, To correct the defects in the 1901 legislation, subsequent legislation was necessary, in which the medical profession of the United States was called on to assist; therefore, be it

Resolved by the Greene County Medical Society that the Secretary of War be petitioned to make adequate provision in the reorganization of the army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision shall aggregate a proportion of medical officers of at least seventy-five hundredths of one per cent. of the enlisted strength of the army, or such number as the Surgeon-General of the army may deem necessary, and be it further

Resolved, That the secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of war, by calling into service in the Medical Reserve Corps physicians from civil life who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

Signed: L. O. FRECH,
R. O. HAWTHORNE,
H. A. CHAPIN, Sec'y,
Committee.

After which the society adjourned.

Meeting called to order at 2 p. m.

Dr. Pitner of Jacksonville, on invitation of the society, read a very interesting, practical and instructive paper on "Pneumonia." The paper was discussed by all present and on motion of H. A. Chapin the thanks of the society were extended to Dr. Pitner for his paper.

Dr. Vedder of the Dental Society being present, stated that he would be pleased to have the Greene County Medical Society appoint a committee to arrange for a joint meeting and program for the several counties in this district at some future time, to be decided upon by the committee. Motion made and seconded that the regular program committee be authorized to arrange for such meeting and co-operate with the Dental Society, after which the meeting adjourned.

H. A. CHAPIN, Sec'y.

IROQUOIS-FORD MEDICAL SOCIETY

The Iroquois-Ford Medical Society held the regular quarterly meeting March 7, 1916, at the Middlecoff Hotel, Paxton, Ill. Twelve members and four visitors were present.

After enjoying a good dinner the society met in

the parlor where, in the absence of the president, the meeting was called to order by Dr. O. O. Hall, the vice-president.

The minutes of previous meeting were read and approved.

On motion Dr. Tresona of Gibson City, Ill., was elected to membership. Dr. W. E. Burgett's application for membership was presented and on motion the by-laws were suspended and he was elected to membership.

The first paper on the program was presented by Dr. W. L. Cottingham, "Vaccine and Serum Therapy," and it was discussed by Drs. Stevens, Cantrell, Smith, Walker and others.

Dr. H. R. Struthers' paper on "Gastritis" was read by Dr. Stevens. Dr. Thomas B. Cantrell, president of the McLean County Medical Society, read a paper on "Some of Our Duties to the Public."

A unanimous vote of thanks was extended to Dr. Cantrell for his most excellent paper.

On motion meeting adjourned.

D. W. MILLER, *Secretary*.

LAKE COUNTY

Lake County Medical Society met in regular session at the Hotel Washburn in Waukegan on Thursday evening, March 9.

Our councilor, Dr. Clyde D. Pence, who was to have been with us at this meeting, was unable to be present, owing to illness in his home. This was one of the big meetings of the year, if members present signify anything, there being present twenty-three.

Minutes of our preceding meeting were read and approved. Dr. Barker reported for the committee on "Fee bill," and on motion this committee was retained and instructed to report further at our next meeting. Carried.

Motion by Dr. Taylor that the chair appoint a committee of three to draw up resolutions of respect on the death of Dr. W. C. Bouton, same to be engrossed on our records and a copy of same sent the family. Motion carried and the following were selected to act on the committee: Drs. Taylor, Tombaugh and Roberts.

The following members were unanimously elected to represent us at the meeting of the State Medical Society: Delegate, J. P. O'Neil of Highland Park; alternates, J. L. Taylor of Libertyville.

The application of Dr. F. H. Martin of Libertyville to become a member of our society having been acted on favorably by the Board of Censors was read and on motion he was unanimously elected a member.

We then listened to the following interesting program:

"Acidosis and Its Relation to Lung Infection in Children," Dr. H. J. Ullmann.

"Diagnosis and Treatment of Diabetes," Dr. M. Herschleder.

"Arthritis Deformans," Dr. L. H. Tombaugh.

Following this a "Dutch lunch" was served and we indulged in an hour's social intercourse. Meeting

adjourned to meet in Libertyville, Thursday evening, April 13, 1916.

C. S. AMBROSE, *Secretary*.

MORGAN COUNTY

The Morgan County Medical Society met March 9, at 8 p. m., at library, Jacksonville, Ill.

Meeting called to order by T. O. Hardesty, the president. Minutes of previous meeting read and approved. Case reports by Drs. Woltman, Bowe, Black, Cole, Gregory, Frank and Adams. Dr. Black called attention to the lack of current literature advocating disinfecting of sharp instruments by use of carbolic acid and alcohol.

The paper of the evening was read by Dr. A. L. Adams on "Tonsils and Their Relation to Disease." The anatomy of the tonsils and the surrounding tissue given in minute detail, showing the anatomical conditions which facilitate the maintaining of infections in the tonsils. Also showing the relations of the tonsils to the Eustachian tube and the tendency of extension of infections in the tonsil to the middle ear. Also showing the tendency for general diseases to follow primary diseases in the tonsils. Referring especially to nephritis, pericarditis, endocarditis, arthritis, chorea, neuritis, tuberculosis and osteomyelitis.

The Doctor advocates complete removal of the tonsil in all chronic infections of the tonsil, unless otherwise contraindicated. In young children there is often hyperplasia, which is not sufficient indication for removal in all cases. If there should be adenoids in such cases the adenoids should be removed and probably the tonsil later.

The paper was discussed freely.

An announcement was made by the president that at the next meeting a vice-president would be elected to take the place of Dr. E. A. Foley, who has removed to Watertown.

The topic of the next meeting was announced by the president: "A Symposium on Tuberculosis."

Meeting adjourned.

T. G. McLIN, *Secretary*.

ST. CLAIR COUNTY

The monthly meeting of the St. Clair County Medical Society was held at the Y. W. C. A. Hall, East St. Louis, March 2, 1916, with President B. H. Portuondo in the chair. There were nineteen members present, also Drs. Fiegenbaum and Ferguson from Madison county, and Drs. Caron, Smith, Spain and Melleton from St. Louis.

Dr. J. F. Percy, ex-president of the State Society, read a paper, illustrated with stereopticon views, on "Inoperable Carcinoma of the Uterus and Its Treatment by Heat." This highly interesting paper was discussed by Drs. Carson, Wiggins, Lillie, Housh and several others.

Three applications for membership were, on recommendation of the board of censors, laid over to the next meeting, the first Thursday in April, at Belleville, Ill.

A. E. HANSING, *Secretary*.

WHITESIDE COUNTY

Whiteside County Medical Society had a most interesting session at Sterling Club Rooms, Sterling, Ill., March 16, 1916. Dr. George T. Palmer of Springfield, Ill., under the auspices of the State Board of Health, gave an especially instructive and helpful address on "Public Health Legislation in Illinois."

This was a public meeting to which had been invited county, township and city officials. Editors of the newspapers of the county and others interested in this subject. Sterling Woman's Club was also represented. Several of the county officers showed a marked interest and took part in the discussion which followed the address. If other county societies would like something along this line this plan is certainly one to be recommended.

HANNAH NICHOLS SCHMALING,
Secretary-Treasurer 1916.

Personals

Dr. and Mrs. Casey A. Wood are visiting in California.

Dr. and Mrs. Edmund Andrews have returned from Florida.

Dr. Marie A. Motis has been appointed health commissioner of Cicero.

Dr. G. E. Wright has resigned as superintendent of the Isolation Hospital.

Dr. R. W. Binney of Granite City, spent February in New York attending clinics.

Dr. John H. Siegel is said to be making an enviable record as mayor of Collinsville.

Dr. Heber Robarts has been elected president of the Safety First Society of Belleville.

Dr. Frank Billings has been appointed visiting lecturer on medicine at Harvard University.

Dr. E. Joe McEntire, Erie, has been under treatment in the Presbyterian Hospital, Chicago.

Dr. Clarence M. Cheadle, Rockford, has given several lectures on conditions in Serbia recently.

Dr. Edmond H. Ames, Antioch, a veteran physician of Lake County, has become totally blind.

Dr. James A. Cline, Joliet, underwent operation for disease of the throat at Wesley Hospital, March 7.

Dr. Lorenz Oatman has closed his drug store at Edwardsville and has resumed practice in Collinsville.

Dr. Percy J. Carroll has resigned as surgeon of the Macon County Hospital, Decatur, and will practice in East St. Louis.

The home of Dr. James J. Moran, Spring Valley, was destroyed by fire March 8, with a loss of between \$8,000 and \$10,000.

Dr. Theodore H. Trappe, Hecker, was thrown from his horse while making a professional call February 21, and sustained severe bruises.

Dr. George P. Gill, Rockford, gave an interesting account of his experiences in the war zone before the University Club, Rockford, March 9.

Dr. Jacob J. Mendelsohn has resigned as resident physician of the St. Charles School for Boys and will resume private practice in Chicago.

Dr. Edward A. Foley of the Jacksonville School for the Deaf has been appointed assistant superintendent of the Watertown State Hospital.

A luncheon was given at the Monroe Center Hotel, March 8, in honor of Dr. Henry G. Davis, who is about to leave on an extended trip to Alaska.

Dr. E. L. Dennison, Chicago, was exonerated of the charge of performing an illegal operation, the woman in the case admitting that the charge was untrue.

Dr. Frank E. Hansen, ambulance surgeon at the Shakespeare Avenuc station, was seriously injured in a collision between the ambulance and a street car March 8.

Dr. John A. McGill, for three years president of the Illinois St. Andrews Society, was tendered a complimentary dinner by the organization at the Hotel La Salle March 1.

Dr. Howard O. Shafer has announced that he will give up his work in Chicago to manage the hospital established in Rochester, Ind., by his father, the late Dr. Winfield S. Shafer.

Dr. Flint Bondurant, Cairo, has been appointed physician for the Children's Home, succeeding Dr. John J. Rendleman, Cairo, who has acted in that capacity for twenty-five years.

Dr. H. J. Frecmmel, assistant physician of the Lincoln State School and Colony, resigned the state service April 1, and will resume practice in Chicago. Temporary address, 3848 Flournoy street.

Dr. Walter W. Armstrong has been transferred from the position of chief of the bureau of food inspection to that of supervising health officer, Chicago Department of Health, and will resume practice.

Members of the National Dairy Council, representing every branch of that industry, held a memorial meeting at the Hotel Sherman, February 28, to pay tribute to their late president, Dr. Henry Baird Favill.

Dr. Raymond W. McNealy has been appointed a member of the surgical staff of Cook County Hospital to fill the vacancy resulting from the departure of Dr. Harry M. Richter for service with the German Hospital unit.

Dr. E. W. Fiegenbaum, secretary of Madison County Medical Society, completed forty years of continuous practice in Edwardsville February 22, and we will wager that there has not been a better secretary of a county society during the forty years.

The fees of physicians acting as commissioners before the Cook County Court were reduced from \$5 or over for each case examined to \$5 per day, by the county board. The board only allowed \$120 to ten physicians whose claims totaled \$1,170.

Dr. Van Arsdale of Park Ridge, is said to have filed a unique claim against the estate of a patient who suicided in the doctor's home, Christmas eve. It was no doubt quite inexcusable on the part of the decedent to pull off such a stunt on the "night before Christmas."

Dr. M. O. Heckard, registrar of vital statistics, Chicago, recently mailed birth report blanks, registration blanks and copies of the new vital statistics law to the 6,000 physicians and midwives in the city. It is up to every physician in the state to register with the local registrars as soon as the blanks are received.

Dr. Clesson C. Atherton, assistant superintendent of the Watertown State Hospital, who has been transferred to the Jacksonville State Hospital, was given a farewell entertainment February 28, at which Dr. Joseph A. Campbell, superintendent of the institution, presented Dr. and Mrs. Atherton with a handsome silver service, a gift from the employes.

News Notes

—If the milkman leaves no lacteal fluid for your "Tom and Jerry" during the milk strike you might cultivate a thirst for Cardui cocktails. They are said to have the real kick.

—Dr. Eva Shaver, Chicago, a graduate of the "National Medical University" has been convicted of murder as the result of an illegal operation.

—Dr. P. J. H. Farrell of Chicago, has been recommended to President Wilson by Senator Lewis for appointment as assistant secretary of war.

—Columbia University has decided to establish a four-year dental course in connection with its College of Physicians and Surgeons in New York City. It will be the first university dental school in the city and the first to give a four-year course in the state.

—Dr. John W. Murphy and Martin H. Urner, Cincinnati, Ohio, have taken over the eye, ear, throat and nose practice of Dr. Thos. M. Stewart, who removes to Oconomowoc, Wis., as one of the staff of the new Edgemoor Sanitarium for the treatment of mental and nervous diseases.

—The Kewanee Physicians' Club, at a recent meeting, endorsed heartily the proposed issue of bonds to finance the new waterworks. The members pledged themselves to support the plan of the mayor and city commissioner in any other reasonable plan to safeguard the water supply of the city.

—Federal indictments were returned before Judge Landis March 25, against George B. Abbott, Samuel D. Katz and George J. Katz, in business as the Dr. G. B. Abbott company, for alleged fraud in connection with their "home treatment" medical business, alleged by the government to be a fraudulent cure-all.

—St. Anthony's Hospital, Rock Island, reports 575 surgical cases, including 276 major operations, during the year ended March 1, with only four deaths. Officers were elected for the year as follows: President, Dr. W. D. Snively; vice-president, Dr. Joseph De Silva; secretary, Dr. A. E. Williams.

—"Clean Living," published by Dr. John Dill Robertson, Commissioner of Health of Chicago, makes its initial appearance with the April number. It is attractive in cover design and full of meat. Its distribution will be made through large industrial plants and employers of labor. The first issue will be 25,000 or more.

—Drs. Clara Harrison Town and Josephine Young are in charge of a new Orthogenic School for children mentally defective in particular lines at 620 S. Hermitage avenue, Chicago. It is under the direction of Rush Medical College, and is supported by a fund of \$3,000 donated by Mrs. Cyrus H. McCormick, Sr.

—Dr. Carl W. Kimery of Allendale, was the victim of a whitecap mob March 10, said to be avenging an attack he made on his wife while intoxicated. Some months ago the doctor's office and drug store were burned supposedly by incendiaries. He might suspect that he is not popular in that community.

—Alleged faulty designation of Mercy Hospital in the will of Charles H. Haines, St. Charles, may cost the institution a two-thirds interest in the estate which is appraised at one-half million dollars. Relatives not mentioned in the will have filed an answer to the partition suit instituted by the hospital and claim that "the Mercy Hospital of Chicago" named in the will does not exist.

—Dr. Wm. H. Gross, commissioner of health of Quincy, asks the co-operation of the public in the fight on contagious diseases. He said that cases of smallpox were concealed and that measles were more virulent and caused more deaths than the mild form of smallpox now prevailing. Measles have been prevalent at Springfield, Kewanee and Hoopeston.

—Dr. Edwin O. Jordan has been appointed chairman of the committee on sanitation and hygiene of the University of Chicago, and Dr. Dudley Billings Reed has been appointed health officer. Dormitories, fraternity houses, and the university dining halls will be kept under close inspection, and a system of health conferences between students and the medical examiners will be maintained.

—Medical students of the University of Chicago and Rush Medical College are co-operating in a

plan to establish a research scholarship in the University as a memorial to Henry Ginsburg, an alumnus of University of Chicago of 1914, and a member of the senior class of Rush Medical College who died at Michael Reese Hospital March 9. It is planned to raise \$1,500 for the endowment of this scholarship.

—The American Journal of Gastro-Enterology has combined with the Proctologist and hereafter will be published (beginning with the March number, first of year) as the Proctologist and Gastroenterologist, from St. Louis. Dr. Lewis Brinton, Philadelphia, and Dr. Anthony Bassler, New York, will have editorial charge of Gastroenterology; Dr. A. L. Benedict, Buffalo, editor of Dietetics; Dr. Rollin H. Barnes, St. Louis, will be managing editor and publisher.

—The council of the Chicago Medical Society in committee of the whole recommended that the findings of the Ethical Relations Committee in the case of Dr. Haiselden be upheld March 14. A press dispatch to the effect that Dr. Haiselden has a contract with a moving picture company as leading actor in a play based on his eugenic theories at a salary of \$25,000, is of real interest in this connection. The unregenerate say everyone has his price and would flout "ethics" if the price came across. How many of us, when the tempter comes, say, "Get t'ell out of here."

—The new Central Hospital, recently built by the Illinois Central Railroad Company at Fifty-ninth and Jackson Park avenue, at a cost of \$360,000, was opened with formal ceremonies March 4. The guests of honor were Drs. Joseph C. Bloodgood, Baltimore, and William A. Evans, Chicago. The hospital is up to date in its equipment, and while primarily intended for the use of the railroad employes, other patients will be admitted when space permits. Dr. Guy G. Dowdall, chief surgeon of the railroad, is in charge of the institution. The hospital was opened to receive patients on March 5.

—The Cook County Hospital has been so crowded that Warden Smith reported to the members of the county board it was impossible to prevent cross infection which caused the death of a patient, Eddie Hyman, admitted with scarlet fever, who contracted measles and diphtheria. This is an intolerable state of affairs inasmuch as

bonds to the amount of \$300,000 were voted in April, 1912, and \$350,000 more in April, 1914, for a contagious disease hospital. The contract for the ward building was let September 24, 1914, and still the hospital is not ready. Part of the delay was due to the difficulty in securing a location.

—The United States Civil Service Commission announces an examination for the position of chief statistician for vital statistics (male) in the Bureau of the Census, to be held April 25, 1916. Salary, \$3,000. Applicants must be between 30 and 50 years of age. They must have four years' experience in charge of vital statistics of a city or state or in position of similar importance, and must be graduates of recognized medical school. Persons desiring this examination should apply at once for form 1312 to the U. S. Civil Service Commission, Washington, D. C., or to the secretary of the U. S. Civil Service Board at Chicago, or in the other principal cities.

—One of the large department stores in Chicago where the better babies contest was staged March 4-11, was fairly swamped by the swarms of babies and their mothers. The advisability of bringing together such a large number of infants when contagious diseases are prevalent and especially in a building that is always crowded, is more than questionable. Fifty-five of the thousands of babies examined were presented with blue ribbons on the 25th, inst., as evidence of superlative development, physical and mental. Miss Mary Campbell, one of the judges, estimated that there were over 10,000 super-normal babies in Chicago, and suggested that they should receive special training to develop the "super-man."

Marriages

ABRAHAM RISEL HOLLENDER, M. D., to Miss Anna Winsberg, both of Chicago, March 1.

CLARENCE HOMER KEMP, M. D., Elmwood, Ill., to Miss Pauline Miller of Lacon, Ill., February 25.

HARRY S. SEIWELL, M. D., former medical director, Alton State Hospital, to Miss Katherine Sparks of Alton, February 16, at St. Louis.

Obituary

THEODORE B. SACHS, M. D.

Dr. Sachs was born in Dvinsk, Russia, May 2, 1868. At the age of 21 years he came to America, after completing a course in law. He was graduated from the Medical Department of the University of Illinois in 1895; served as house physician at Michael Reese Hospital for two years. Died from an over-dose of morphin, self-administered, at Edward Sanatorium, Naperville, April 2, 1916.



THEODORE BERNARD SACHS, M. D.

He was early attracted to the study of tuberculosis, both from a medical and sociological standpoint.

Investigated tuberculosis conditions in congested districts of Chicago. Two investigations, first covering period of 18 months, May 1, 1902 to November 1, 1903; second, 2 years, January 1, 1906 to January 1, 1908. Charts exhibited at the International Tuberculosis Congress in Washington in 1908.

Studied the problem of children of tuberculous

parents. A study of several hundred families. Results published in the *Journal A. M. A.*, under the title of "Children of the Tuberculous."

Founder of the first tuberculosis clinic in Chicago (tuberculosis clinic of the West Side Dispensary in 1900).

One of the founders of the Chicago Tuberculosis Institute: president at time of death.

Organizer of the Committee on Factories of the Chicago Tuberculosis Institute, the first agency to start a systematic campaign for medical examination of employes. The committee co-operates at present with numerous industrial establishments, employing in all about 250,000 people.

Founder of the Robert Koch Society for the study of tuberculosis.

Had charge of the building plans of the Chicago Municipal Tuberculosis Sanitarium. Member of its board of directors 1909-1913; president 1913-1916. Resigned in 1916.

Conducted a campaign for the establishment of the Winfield Tuberculosis Sanitarium of which he was physician in chief for several years; head of its consulting staff at time of death.

Medical director and head of the Edward Sanatorium at Naperville, Illinois.

President of the national association for the Study and Prevention of Tuberculosis, 1915.

Chairman of the Advisory Committee of the County Tuberculosis Institutions since 1912. Detailed report of the committee published by the Chicago Tuberculosis Institute.

Chairman of the committee on union labor of the National Association for the Study and Prevention of Tuberculosis.

Chairman of the committee on Hospitals for Advanced Cases, appointed in 1912, by the National Association for the Study and Prevention of Tuberculosis. This committee investigated hospitals in the larger cities of this country three years ago (report published by the National Association).

Dr. Sachs' tragic death following so soon after his resignation as head of the Municipal Tuberculosis Sanitarium aroused the sympathy of leaders in Chicago's social life and shocked men everywhere who are interested in the fight against tuberculosis. The various investigations now under way to determine the conditions which led

to his resignation and death will be watched with interest by the public.

Deaths

AUGUST HILARY MEATH, M. D., Chicago; Rush Medical College, 1888; aged 53; died at his home, Feb. 16, from lobar pneumonia.

WILBUR A. BEARD, M. D., Chicago; Hospital College of Medicine, Louisville, 1901; New York Homeopathic Medical College, New York City, 1904; aged 39; died about Feb. 2.

GEORGE L. BEACH, M. D., Chicago; Hahnemann Medical College, Chicago, 1883; aged 55; died in Hahnemann Hospital, Chicago, March 8, from carcinoma of the prostate.

GEORGE EDWARD FLOOD, M. D., Chicago; Detroit Medical College, 1879; aged 59; died in the Washington Park Hospital, Chicago, Feb. 28, from uremia, after a surgical operation.

WILLIAM LEET KREIDER, M. D., Prairie City, Ill.; Rush Medical College, 1859; aged 84; for more than sixty years a practitioner of Prairie City; died at his home, Feb. 19, from cerebral hemorrhage.

HARRY DAVID JAMES, M. D., Chicago; Dearborn Medical College, Chicago, 1907; professor of ophthalmology in the Chicago, Eye, Ear, Nose and Throat Hospital; died at his home, Jan. 27, from pneumonia.

LOUIS N. BARLOW, M. D., Chicago; Northwestern University Medical School, Chicago, 1885; aged 54; founder of the Forest Beach Tuberculosis Sanitarium, soon to be opened in Michigan; died at his home, March 24.

AMOS SAWYER, M. D., Hillsboro, Ill.; Washington University, St. Louis, 1870; aged 79; one of the oldest practitioners in Montgomery County; retired a few years past on account of poor health; formerly active in medical organization; died at his home, March 18, from senility.

JAMES A. MARTIN, M. D., Palestine, Ill.; Medical College of Ohio, Cincinnati, 1879; aged 60; a Fellow of the American Medical Association and for many years a practitioner and druggist of Palestine; died at his home, March 4, from heart disease.

RAYMOND JESSE NATE, M. D., Chicago; Rush Medical College, 1892; aged 45; was fatally injured, March 10, by the falling of a weighing machine in front of a drug store at Thirty-ninth street and Cottage Grove avenue, and died while being taken to the Lakeside Hospital.

DANIEL ELISHA FOOTE, M. D., Belvidere, Ill.; University of Buffalo, N. Y., 1851; aged 87; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for sixty years a resident of Belvidere; in the early fifties, sur-

geon of the Fifty-Seventh Infantry, New York State Militia; for several terms coroner of Boone County and a member of the school board of Belvidere; died at his home, Feb. 22.

WILLIAM C. BOUTON, M. D., Waukegan, Ill.; Northwestern University Medical School, 1889; aged 50; formerly a Fellow of the American Medical Association; a Fellow of the American Academy of Medicine, a member of the Illinois State Medical Society, and formerly president of the Lake County (Ill.) Medical Society; secretary of the Lake County Tuberculosis Institute; died at his home in Waukegan, March 1, from paralysis.

NEW AND NON-OFFICIAL REMEDIES.

During February the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

W. L. Cummings Chemical Co.: Radium Bromide, Radium Carbonate, Radium Chloride, Radium Sulphate.

Borcherdt Malt Extract Co.: Borcherdt's Dri-Malt Soup Extract, Borcherdt's Dri-Malt Soup Extract with Wheat Flour, Borcherdt's Soup Powder.

Since publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies:

Lyster's Prepared Casein Diabetic Flour.—Milk casein to which has been added a leavening mixture, sodium chlorid and saccharine. Used in the form of muffins in diabetes, etc. Lyster Brothers, Andover, Mass. (Jour. A. M. A., Feb. 26, 1916, p. 653.)

Antistreptococcus Serum Rheumaticus, Squibb.—Produced from strains of streptococcus from the joints and blood cases of rheumatism. The serum is intended for use in cases of acute articular rheumatism. E. R. Squibb & Sons, New York. (Jour. A. M. A., Feb. 26, 1916, p. 653.)

Book Notices

A HANDBOOK OF INFANT FEEDING, by Lawrence D. Royster, M. D., Attending Physician, Bonney Home for Girls and Foundling Ward of the Norfolk Society for the Prevention of Cruelty to Children; Physician in charge of King's Daughters' Visiting Nurse Clinic for Sick Babies. Illustrated. Price \$1.25. C. V. Mosby Company, St. Louis.

A book gotten up to save time required to read larger works, furnishing only the essentials necessary for infant feeding. As such it fulfills its purpose.

DIAGNOSTIC METHODS. A Guide for History Taking, making of routine physical examinations and the usual laboratory tests necessary for Students in clinical pathology, hospital internes and practicing

physicians by Herbert Thomas Brooks, A. B., M. D., Professor of Pathology, University of Tennessee, College of Medicine, Memphis, Tennessee. Third edition, revised and rewritten. Price, \$1.00. C. V. Mosby Company, St. Louis.

A short manual of diagnostic methods, concise and up to date; especially useful for the man not doing very much laboratory work.

SOCIAL TRAVESTIES AND WHAT THEY COST, by D. T. Atkinson, M. D. Vail-Ballou Co., New York, \$1.00.

An attempt, as stated by the author, to show the results of present day ignorance of the laity, and the disregard paid to sex matters as a whole both by physicians and laity, with the dire results that follow. It is a very readable book, and causes one to pause and think of where to place the blame. Although a small book, it covers the subject thoroughly and cleanly, with a plea for a campaign of education along these lines.

CANDY MEDICATION, by Bernard Fantus, M. D., Professor of Pharmacology and Therapeutics, College of Medicine, University of Illinois, Chicago. Price, \$1.00. C. V. Mosby Co., St. Louis, Mo.

This author has given to the profession in this small volume a method of prescribing drugs in a candy form. The methods of manufacturing and formulæ are given. The formulæ mostly are gotten up for children, for whom this method of presenting medicine is especially valuable. For those desirous of trying this method of treatment, this manual is recommended.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago. Volume V, Number I (February, 1915). Octavo of 194 pages, 33 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Published bi-monthly. Price per year: Paper, \$8.00; cloth, \$12.00.

This number of clinics, which has been edited by Dr. P. G. Willern, Jr., of Philadelphia, contains twenty-four articles. They are all presented in the usual style of Dr. Murphy, and should prove valuable to the readers of this volume of Clinics.

NEW AND NON-OFFICIAL REMEDIES, 1916, containing Description of the Articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1, 1916, Chicago, American Medical Association.

This volume, 1916, as in previous volumes, contains a list of medicinal substances which have been examined and accepted by the Council on Pharmacy and Chemistry of the American Medical Association, for inclusion in the New and Non-Official Remedies. Changes of dosage forms and the omission of some substances in the 1915 volume are noted. It is a book that should be on the desk of every physician.

PRINCIPLES AND PRACTICE OF PHYSICAL DIAGNOSIS. By John C. DaCosta, Jr., M. D., Assistant Professor of Medicine, Jefferson Medical College, Philadelphia. Third edition, thoroughly revised. Octavo of 589 pages with 243 original illustrations. Phila-

delphia and London: W. B. Saunders Company, 1915. Cloth, \$3.50 net.

With the issue of this edition we have a complete and up-to-date text book on the Principles and Practice of Physical Diagnosis. Considerable new matter is noted, chiefly the newer technical methods, and diseases of the lungs, the heart, and the stomach. Vertebral percussion, sphygmomanometry, electrocardiography, and gastric radiography are subjects that have received due attention. Much other new matter is noted, and the discussion from a clinical standpoint on certain affections of the heart is timely. It will undoubtedly be received with as much, if not more, favor than the previous editions, which in their time were standard works on physical diagnosis.

SEXUAL IMPOTENCE, by Victor G. Vecki, M. D., Consulting Genito-Urinary Surgeon to the Mt. Zion Hospital, San Francisco. Fifth edition, enlarged; 12mo. of 405 pages. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$2.25 net.

The need a fifth edition emphasizes the importance of the subject, and the popularity of this particular work by an author who has devoted long years to its study. The book is exceedingly well written and covers the subject thoroughly.

This book should be read and earnestly studied, as the general practitioner is generally in the dark when attempting the treatment of this malady. Indications for treatment and the various methods of treatment are thoroughly gone into, so that the general practitioner may undertake the care of those unfortunates in a confident and rational manner.

VENEREAL DISEASES, a Manual for Students and Practitioners, by James R. Hayden, M. D., F. A. C. S., Professor of Urology at the College of Physicians and Surgeons, Columbia University, New York; Visiting Genito-Urinary Surgeon to Bellevue Hospital; Consulting Genito-Urinary Surgeon to St. Joseph's Hospital, Yonkers, New York. 12 mo., 365 pages, with 133 illustrations. Cloth, \$2.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

This issue of Hayden's Venereal Diseases presents considerable improvement, both in subject matter and illustrations, over the previous editions. The fact of a fourth edition stamps its popularity. It is in fact one of the best manuals on this subject, and contains the fruits of the author's own personal experience, including only those methods of diagnosis and treatment which he has found useful and efficient. There are 36 chapters, of which 18 are on syphilis, 9 on gonorrhea, and 9 on other forms of venereal diseases. As a manual it can be recommended to the student and practicing physician.

CANCER OF THE STOMACH. A Clinical Study of 921 Operatively and Pathologically Demonstrated Cases, by Frank Smithies, M. D., Gastro-Enterologist to Augustana Hospital, Chicago. With a chapter on the Surgical Treatment of Gastric Cancer, by Albert J. Ochsner, M. D., Professor of Clinical Surgery in the University of Illinois. Octavo of 522 pages, with 106 illustrations. Philadelphia and London: W. B.

Saunders Company, 1916. Cloth, \$5.50 net; Half Morocco, \$7.00 net.

A monograph on cancer of the stomach appearing at this time is very welcome, and when it is as complete and thorough as the present it is doubly welcome. Much has been written on cancer of the stomach in the last decade, but this is the first complete monograph on this subject in the last ten years.

The exposition of the subject is based upon a study of 921 cases that were operated upon and demonstrated pathological. Case reports are frequently presented to demonstrate some particular observations. The chapters on diagnosis are especially valuable and ought to help towards an early diagnosis which offers the only hope for the patient. Much emphasis is placed upon the relation of chronic gastric ulcer and cancer.

A chapter on the operative treatment by Dr. Ochsner further strengthens the value of this volume. Dr. Ochsner is exceedingly thorough and presents much valuable information on the surgical side of the treatment of gastric cancer.

The illustrations play an important part in the presenting of the subject. For those seeking the best work on gastric cancer this book can be earnestly recommended.

OBSTETRICS. A Practical Text-book for Students and Practitioners, by Edwin Bradford Crazin, A. B., A. M. (Hon.) M. D., F. A. C. S., Professor of Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University, New York; Attending Obstetrician and Gynecologist to the Sloane Hospital for Women; Consulting Obstetrician to the City Maternity Hospital, the Italian Hospital and the New York Nursery and Child's Hospital; Consulting Gynecologist to the Presbyterian Hospital, the Roosevelt Hospital, the Lincoln Hospital, the New York Infirmary for Women and Children, and to St. Luke's Hospital, Newburgh, N. Y., Assisted by George H. Ryder, A. B., M. D., Instructor in Gynecology, College of Physicians and Surgeons, Columbia University, New York; Assistant Attending Obstetrician, Sloane Hospital for Women; Associate Surgeon, Women's Hospital.

This new work on obstetrics is the result of the author's large experience at the Sloane Hospital for Women. Though very complete, it is not too large. The subject matter is presented in an interesting manner, making it very readable. Extensive statistics, bibliography and discussions have been excluded, although important articles are referred to. His method of dividing subject is somewhat different from most authors, but his reasons for doing so are apparently justifiable. The illustrations are exceedingly well made, and mostly original. It bids fair to become one of the popular text-books of obstetrics.

TREATISE ON FRACTURES, by John B. Roberts, A. M., M. D., F. A. C. S., Professor of Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine; Sometime Chairman of Fracture Committee of American Surgical Association; Membre de la Societe Internationale De Chirurgie; and James A. Kelly, A. M., M. D., Attending Surgeon to St. Joseph's, St. Mary's and St. Timothy's Hospitals;

Associate in Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine. With 909 illustrations, radiograms, drawings and photographs. J. B. Lippincott Company. Philadelphia and London. Price, \$6.00.

A new work on fractures that bids fair to become a standard work on fractures. Throughout the volume the results of a large clinical experience are in evidence. The illustrations are excellent and numerous. It contains 29 chapters divided into general considerations, the operative treatment of closed fractures, then chapters on fractures of the various bones of the body, closing with a chapter on birth fractures and one on gunshot fractures. The mechanical features of the book are excellent. It is recommended as a complete, thorough and authoritative treatise on fractures.

THOSE ABOUT TRENCH. By Edwin Herbert Lewis, Ph. D., Professor of English and Dean of Faculty, Lewis Institute, Chicago. A novel of 326 pages. Cloth, \$1.35. The MacMillan Company, New York. 1896.

This novel will be of interest to the physician because the principal character, "Trench," is a young Chicago physician, a professor in "Lister" college. Of independent fortune, he is of the type of studious, successful, medical men, so engrossed in his professional work that he has ignored everything in life but the materialism that appeals to the physical senses. Owning a building in Halsted street, he kept bachelor's hall there, maintained an office and "let" rooms to several medical students who formed a happy family in their devotion to the professor, though they represented half a dozen countries. In fact, one of the things that gives the book an unusual zest is the Babel of tongues, from Ojibway and Halsted street Yiddish to Chinese and Persian, that portrays the most cosmopolitan district west of Cairo.

The story introduces some social welfare interests, which shows that it is up to date, and a reasonable amount of love, without which it would not be a novel. The characters represent all religions, but Christianity is in a minority. It would appeal, perhaps, to a larger circle had the heroine secured a clear-cut adhesion to her religious views on the part of the doctor. But no one can say that it differs in this respect from what we see every day.

The action begins in that delightful region along the Sault Ste. Marie, where Mr. Lewis has spent many summer vacations. His affection for that Encampment on Neebish is summed up in the synonym, "Enchantment."

Much of the plot revolves about the west side of Chicago, with occasional forays the whole length of Halsted street, which extends from Edgewater to the Calumet River, and in its twenty-two miles epitomizes everything from Mayfair to Billingsgate. Some of the characters lead the action to far away Peshawar, Tashkent and Bokhara and meet in Sarajevo at the assassination of the Austrian crown prince, which set the world on fire. His description of that event is said to come from first hand authorities.

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Original Articles

THE CRIMINAL BOY.* SOME OBSERVATIONS BASED UPON 112 CASES.

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CHICAGO.

Let my first words in this brief paper be words of protest against a somewhat extreme modern tendency to excuse the perpetrator of any crime, provided he is of relatively immature years. There are organized efforts on the part of certain groups of well-motivated, eminently respectable people, not only to themselves excuse crime of any sort, provided the perpetrator is under 25 years of age, but also organized efforts to induce everyone else, especially those who administer the law, to take this same view. They would seek to have us regard *youth* itself as a psychopathic disorder, especially as applied to the male sex, though for some reason they are not equally generous toward the girl criminal who may have committed a less flagrant offense.

Furthermore, the word "boy" in the criminal courts has come to be a term of much wider comprehension and much greater inclusion than is given to it anywhere else. It is almost a travesty to observe the 18-year-old male as an honest bread-winner, almost a man of affairs in the every-day walks of life, in business, in society, while his 25 or 26-year-old uncle, who steals an automobile or shoots up the town and commits robbery with a gun, and possibly murder, snuffles and eringes his way into the halls of justice, begging to be considered as "only a boy," and the judge who presides over the court is besought by organized groups of people to consider his crime as only a boyish prank and that the perpetrator thereof should be given "another chance." And if for good and sufficient reasons the presiding judge fails to be moved by any such maudlin sentimentality, these same excusing agencies seek to have this poor misguided

25-year-old boy examined and if possible made out a "moron" and therefore unaccountable and irresponsible for his criminal act. It seems ridiculous to call the high school boy at the age of fifteen "Mister," regarding him to all intents and purposes as a man, and then six, eight or ten years later when he is arrested for crime, call him a "boy." There may be and probably are many good reasons for a special branch court called the "Boys' Court," but it should never be forgotten that to justify its existence it must be more than a "Court of Excuses."

My purpose in presenting the results of my study and observation of 112 boys charged with crime, is to show that on the whole, the mental life and development of the criminal boy has but few unusual features, that his mental powers unfold in about the same way as do those of the boy who does not clash with the laws of society or get into trouble calling for court adjudication.

These 112 boys were chiefly inmates of the county jail of Cook County. Eight were inmates of county jails in counties other than Cook; four were in the Pontiac Reformatory; three in the House of Correction. For statistical purposes I am compelled to use the word "boy" with the same poetic license as previously alluded to, i.e., my group includes males ranging in age from 16 to 25 years.

Let me briefly summarize the results of my investigation:

1. *Tests of the Senses*—The tests of vision of these boys incarcerated in our criminal institutions reveal the fact that 9.5 per cent. have defective vision, mostly a minor astigmatism in character. This is not such a remarkable deficiency to the writer's mind when he recalls that as a result of investigations upon the children in the public schools of Illinois directed by him in the five years, 1892-1897 inclusive, it was found that 11 per cent. of all the school children of Illinois have defective vision—and further-

*Read before the Chicago Medical Society, April 19, 1916.

more these defects of vision increase in frequency as we pass from the lower to the higher grades in the public schools. If the average defect of vision in children of school age from 6 to 16 is 11 per cent., then the 9.5 per cent. of visual defects in boys in the jails, ranging from 16 to 25 years of age, is not a great variance from the average and is really in favor of the jail boy.

Twenty of these 112 boys, or 18 per cent., had defective hearing in one ear or both, chiefly as a result of adenoids or catarrhal diseases such as are the sequellæ of scarlet fever. But at the same time please remind yourselves that 19 per cent. of all the children in the public schools of Illinois have defective hearing in one ear or both.

The sense for the perception of the finer discriminations of touch is somewhat blunter in the boys confined in jail than in the boys outside; also the perversions of taste are more marked. It was not an unusual occurrence when applying vinegar to the tongue tip of the blindfolded boy in jail to have him state that it tasted like whiskey instead of the normal answer "sour." Yet by far the larger majority of these 112 boys correctly discriminated between sweet, sour, salt and bitter. And in passing, may I state that in nearly every case where the sense of taste was perverted an examination of the boy's mouth disclosed that the tongue and the mucous linings of the mouth were covered with a foul, mossy, yellow brown coating as a results of cigarette indulgence.

2. *Tests of Memory.*—I find almost without exception that these boys confined in institutions have better visual than auditory memories. They remember the things they see better than the things they hear. But they also remember the concrete better than they do the abstract. For example, if, after the manner of the usual laboratory test, I place a series of figures such as 4, 9, 6, 3, 7, 5, 1, 8 on the observation shutter for 10 seconds and then cover up these figures the boy being tested may only recall four of the eight figures. But if I expose for the same period a series of playing cards, e. g., the four of diamonds, the nine of hearts, the six of clubs, the trey of spades, etc., throughout the series of eight cards, he will correctly remember at least six or seven of the eight and in the exact order presented. Within the last two years some friends

of mine in examining boy prisoners in the county jail reported that certain boys could not grasp or comprehend number combinations aggregating greater than seven. That is, they could add 4 and 2, 3 and 4, etc., but could not grasp a sum greater than seven. Yet these same boys when engaged in playing the game of cards called "Rhum" would add quickly and correctly such numbers as 8, 5 and 7, in counting the penalty cards remaining in hand. My point is that such a boy's mental development must not be rated or established by his inability to add or count beyond seven when under the incentive of actual games of contest he is able to comprehend number relations many times greater.

In this same connection we should also recall that it is not only the jail boy who has better eye memory than he has ear memory. The child study work in schools, tests of 200,000 school children in these United States, reveals that in our public schools the normal boy has this same memory characteristic. The normal boy has a better memory for the things seen than for things heard. He is eye-minded rather than ear-minded. On the other hand, girls have better ear memories than boys, chiefly because the girl attends more closely to things heard while the boy attends more closely to the things he *sees*.

3. *Powers of Judgment and Comparison.*—Nearly every one of the 112 boys charged with crime possessed to the full degree the power of making judgments as to values. This was evidenced in many ways, notably in their exercise of the trading instinct. Their trades and dickers among themselves and with other inmates revealed keen and accurate judgment of values of articles possessed and articles sought in exchange; indeed, the majority of them barter with the keen business sense of embryonic merchant princes. Their judgment of danger involved in carrying out certain predatory criminal acts also evinces the high degree to which the faculty of judgment is developed. To illustrate: The average boy criminal has been led to believe on mere traditional basis that it is an offense against the United States government to break open a car seal. Therefore, in his depredation, unless he is old in crime, he avoids breaking car seals, but will commit all sorts of infractions against city ordinances and state laws. Why? For the reason that to him the United States courts are great impersonal

agencies punishing all regardless of excuses, while the state and city courts are always capable of being thwarted in meting out punishment, and since such acts are fraught with less danger the criminal boy will break the lock of a house or cigar store, or hold up a drug store or saloon, or commit robbery with a gun upon a pedestrian, or murder the agent of an elevated station, rather than break open a car seal, basing his judgment as to such conduct upon his own experience and that of others.

4. *As to the Imagination.*—In passing rapidly I can only say that my studies show that these self-same criminal boys are deficient to a degree in constructive imagination. It seems somewhat difficult for them to picture the joys and rewards of methods of living other than those that have brought trouble upon them. They do possess, however, more than ordinary ability in reproductive imagination, which in a degree offsets the deficiency in constructive ability. They copy better than they initiate.

And last, *As to Reasoning.*—These 112 boys as a group show no material deficiencies in inductive reasoning. They are, however, below par in reasoning deductively, i. e., from premise to conclusion.

This rapid review of my investigations may suffice to reveal the basis of my conclusion that the average boy confined in jail is not grievously defective in mental power or mental development. His being in jail is the "end-result" of *misdirection* of mental energy and the *misapplication* of mental ability. In nearly everyone of the 112 cases the predicament of the boy was due to the failure to bring him face to face with the consequences of his act at the commission of his first offense earlier in his career. The first infraction, a minor one, was excused; he soon commits another and more serious one, and so on until finally his offense is so bald or some judge awakens to the seriousness of the situation and the boy is confined in jail. To illustrate: a school boy was found to be stealing from other pupils, from his teachers and from the board of education. Intercession was made, no punishment meted by parent or principal; he was "excused" and the offense glossed over with polite phraseology. The enormity of the crime of stealing was never forcefully presented to his mind. In fact, he was made to feel that he did not *steal* but only

"took" things and did not really men to do that. Later he was in the Boys' Court for stealing from merchants in the neighborhood; has developed the stealing habit; is a *thief*, and still excuses galore were offered in the hope of his escaping punishment. My contention is this: *Always excusing for crime makes a pathological personality out of a boy who at the outset of his criminal career was normal in every mental attribute and would have remained normal but for these excusing agencies.*

May I invite your brief consideration to another phase of this study. There are occasionally criminal boys who are mentally defective. But these defects are best revealed by intensive individual study of the particular boy in question and the circumstances surrounding the commission of the particular crime in question rather than by any system of laboratory routine. And do not conclude when I say this that I am speaking without laboratory experience. If the personal allusion will be pardoned, the writer begs to state that he installed the first psychological laboratory in this state at the State University of Illinois in 1892; that during the five years he was head of this department at your state university he conducted and directed tests upon the mental faculties of thousands of normal children in the public schools; that in 1897 he established at Kankakee the first laboratory of psychology in an insane hospital in this country. This was made possible through the hearty cooperation of one of your members, Dr. Wm. G. Stearns, then superintendent at Kankakee. Later, in cooperation with the late Dr. W. S. Christopher, he also assisted materially in making the Child Study Department a vital part of Chicago's public school system.

Based upon this experience and upon the results of the last nine years of study of confined criminals or those charged with crime, I have reached the conclusion that the routine laboratory methods have but limited value in disclosing the mental development and mental efficiency of the criminal boy. May I illustrate? A boy within a few months of graduation from one of the Chicago high schools was arrested for stealing railroad property and selling the same. He was convicted. Later he was paroled, and still later was rearrested for violation of his parole. He was 16 years old. In the high school he had

proved intellectual power quite above the average of his age and race. When rearrested intercession was made for him and a laboratory examination was ordered by the presiding judge. The laboratory report showed his mental age to be less than eight years, and that his acts should be interpreted as those of an eight year old boy; and this in face of the fact that the boy had passed through all the grades of the Chicago public schools with credit and in school achievement was above the average of his age. For my part I regard the combined conclusions of the score of teachers who had been in daily touch with this boy in the school rooms, for more than ten years, as a better criterion upon which to base one's judgment of his mental status than in the arbitrary dictum of the most skilled laboratory man who put him through an hour's examination by the Binet-Simon tests. These tests have value but reveal only a very small segment of the entire circle of the boy's activities. We should at least not make claims as to the infallibility and completeness of these and similar laboratory tests that are more extravagant than the claims of those who originated these tests.

There is also a tendency to arbitrarily interpret the findings evoked by the Binet-Simon and similar tests. To illustrate: One of the tests of the higher mental processes of the fifteen-year-old which I quote is this: in the course of examination the statement is made to the boy that "my neighbor has received some singular visitors; he receives one after another, a doctor, a lawyer, and a priest. What is going on at my neighbor's?" The correct response, according to the books, is "He is very ill; some one is very ill there—dead," and this response is the necessary one if the boy examined is to make the fifteen-year-old mental grade. A boy recently convicted of murder, when asked this selfsame question, replied to the writer that the doctor, lawyer and priest were all three there to get money. My contention is that in so answering this stereotyped question he exercised his more complicated mental processes as fully and as well as if he had given the answer "illness" or "death," as designated by the book as the only correct answer.

Some of the boys who are the beneficiaries of these well motivated efforts themselves heap ridicule upon the methods of those seeking to assist them in escaping punishment. Two boys recently

in an East Sixty-third street billiard hall or pool room were conversing when a third associate entered. He had just been released from the Boys' Court. He was asked "What did they do to you, Red?" "Nothing," came the answer. "Last time they told me I was a moron but now I am a high grade imbecile." A little later he successfully negotiated a difficult shot on the pool table and one of his associates in complimenting him laughingly remarked, "If a high grade imbecile can make a crack shot like that I am going down to court and get some of the same dope."

Two years ago I examined in the Cook county jail a boy convicted of murder. The evidence was conclusive. His lawyer, as a last resort, sought an examination. He was found sane. On leaving him he suggested, "Well, Doctor, if you can't make me out crazy, can you not at least make a 'maron' out of me?" He had heard the word "moron" and knew of it as a term to get out of jail with, but had not yet learned its correct pronunciation. I make this explanation that no one will think he was using the term as applied to the loyal sons of the University of Chicago.

No one will grant more readily than I that the Binet-Simon and other tests have a proper and important use, but *within limits*. In addition, we must use every recourse possible to gain knowledge of the particular boy as related to the particular crime with which he is charged.

As physicians, as men and women of affairs, we must assist in making plain to the boy that the laws of society are as inexorable as the laws of health; that the violation of the laws of the state cannot help but bring disaster to the guilty individual. That we must impress upon the mind of the criminal boy, the boy already confined, charged with crime, that his life in its various relations to society must be readjusted according to law. As physicians going in and out of the homes of our citizens we can do large things in leading the boy to see from earliest childhood that wholesome civil freedom as well as comfortable physical freedom comes alone to those who travel a course in harmony with law rather than one that runs counter to it. That violation brings one in contact with the rough edges of stern law; that this contact not only wounds and pains, but invites disaster. As physicians, scientifically trained, but broad-minded, deep chested,

large hearted, with a passion for service of our city, state and nation, in behalf of the boys of today who become the men of tomorrow, we can and should become leaders of thought and action in creating in the boys and in their parents a wholesome respect for law. With patience, with devotion to calling, with breadth of vision that perceives the final goal in the evolution of the state, we can, as physicians, accomplish almost as much in curing the pathological conditions of society that makes criminal boys as we can in curing the pathological conditions that obtain in the individual patient who presents himself at hospital or office. We can and should make two blades of wholesome regard for law grow where but one grew before. In social medicine as well as individual physical treatment, prevention is better than cure. By seeking the enforcement of civil and criminal law, and assisting in creating a respect for law, we are making for, rather than against, the mental health of the otherwise criminal boy.

THE ULTRAVIOLET RAYS IN DERMATOLOGY.*

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From the time that Wollaston discovered the existence and action of the invisible part of the spectrum, little was heard of these invisible or "ultra"-violet rays until Finsen pointed out their importance for therapeutic purposes.

He first recognized the injurious action of the short waves light in variola and instituted his method of treatment of this disease (red light treatment) by exclusion of the short waves or chemical rays. It was a treatment of a negative character. But soon a light treatment of a positive character forced itself upon his attention. The bactericidal action of the chemical rays became known and their inflammatory reaction upon the skin was, mainly by himself, observed and studied. It was therefore tempting to try the ultra-violet rays on lupus vulgaris, which is both a superficial and bacterial disease. Finsen believed to have found that the blue rays were the ones which produce inflammatory reaction

and the rays to the right of blue in the spectrum (violet and ultra-violet) produce bactericidal action. He found the most appropriate mixture of these rays in the carbon arc, which he used for his lamp with compression and anemization of the skin, to eliminate the absorbing red of the blood. The Finsen method of treatment became established and the Finsen lamp made its triumphant tour through the world. The lamp has, however, shown many shortcomings, quite troublesome to each of us who is operating it. It is too cumbersome an apparatus to handle, too expensive in operation, the radiations can be focused only on small areas and require long time. Finally, it was proven that the ultra-

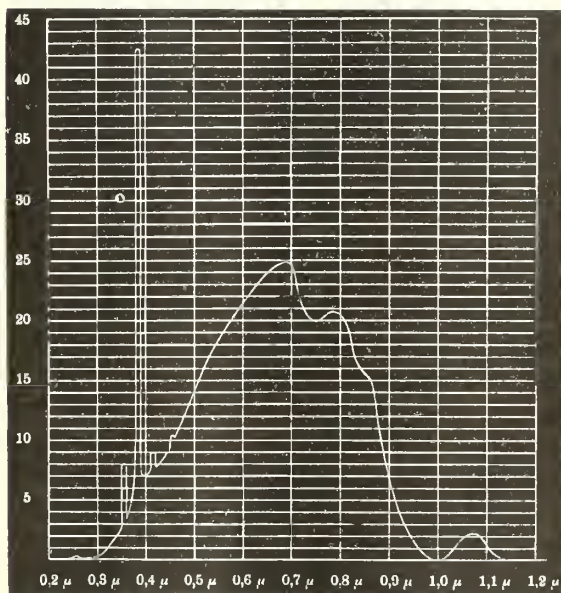


Fig. 1. Radiation of the Finsen-Reyn Lamp. Shows That of the Total Millicalories Consumed Only a Small Part Produce Short Wave Rays (Shorter Than O, 4 M).

violet rays alone are the ones which produce the therapeutic action (inflammatory as well as bactericidal) and that the amount of energy, radiated by the therapeutically useful rays is only a small percentage of the waste of total radiation of the electric arc (Fig. 1). The need was therefore felt of a richer and more convenient source of ultra-violet rays. In 1896 Leo Arons discovered the mercury vapor lamp, the construction of which was varied and improved by Lummer & Straubel, Fabry & Perrot and finally by Cooper-Hewitt. The mercury arc was then known to be relatively rich in ultra-violet rays,

*Read at the meeting of the North Shore Branch of the Chicago Medical Society, April 4, 1916.

the superiority of the mercury vapor spectrum being shown in Fig. 2, which is drawn to the same scale. In 1904, when Haereus in Hanau had succeeded in producing vessels of fused quartz, whose transparency for short wave length

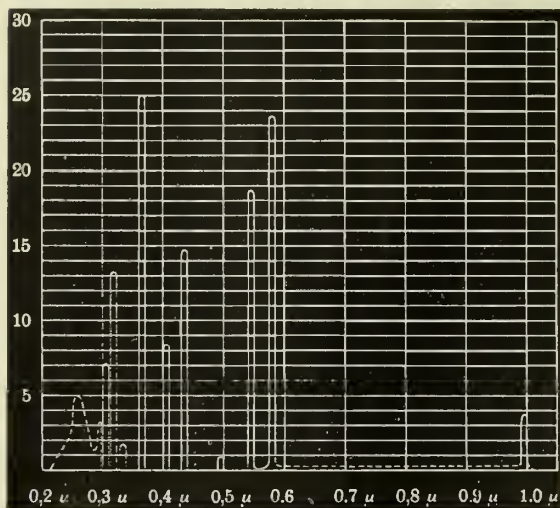


Fig. 2. Radiation of the Mercury Vapor Quartz Lamp (Drawn to the Same Scale as Fig. 1). Shows the Production of a Larger Amount of Invisible Rays (Shorter Than O, 4 M).

rays was then known, Kuech & Retschinsky substituted this material for the glass tube, employed previously, merely with the intention of increasing the transparency of the container. But in using lamps made of quartz and varying

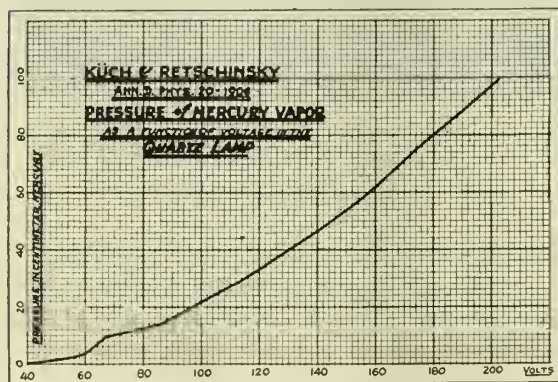


Fig. 3. Shows the Pressure of the Mercury Vapor in the Tube Increasing With the Increase of Voltage.

conditions, they made an important discovery. In the Cooper-Hewitt lamp the working pressure of the mercury vapor is small, 1-2 cm. or less, and the mean temperature of the light emitting mercury vapor column about 400 Celsius, while

the output in ultra-violet rays is comparatively small, even if the tube is made of quartz; the same lamp will show a larger efficiency and emit a much larger percentage of its radiated energy in the form of ultra-violet rays, if the working pressure and the temperature of the mercury vapor column are raised by "overloading" the lamp, thus increasing the drop of potential per cm. of tube length (Figs. 3 and 4). In the original Cooper-Hewitt glass mercury vapor lamp this drop equals about 1 volt per cm. tube length, which is increased in the quartz lamp to 30 volts per cm. tube length, the working pres-

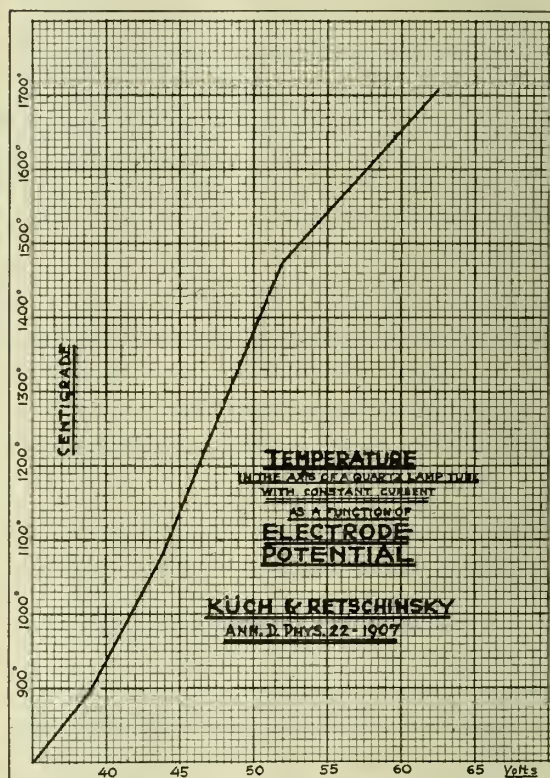


Fig. 4. Shows the Enormous Increase of Temperature With the Increase of Voltage.

sure of the mercury increases from the original 1-2 cm. to 150 cm., while the temperature rises from 400 C. to several 1,000 C., as shown in the diagram. When the load is gradually increased there is at first a pronounced decrease in efficiency, observed up to a certain ("critical") point, which marks the transformation of a low-pressure lamp into a high-pressure lamp (Fig. 5). The increased output in ultra-violet rays appears somewhat later than the increase of efficiency, is at first proportional, but still later

on increases faster than the efficiency of the device, the part of the short wave length spectrum increasing faster than that of the larger waves (Figs. 6 and 7).

That this phenomenon is a direct consequence of the increased temperature and pressure of the mercury vapor was demonstrated by Buisson and Fabry (Comptes Rend., 152, 1911), and Henry (Ibid, 153, 1911) who investigated the output of ultra-violet rays as a function of the cooling conditions (Fig. 8): submerging of the lamp in water decreases the output of ultra-violet rays (and also the efficiency of the lamp) by decreasing the temperature and the pressure of the mercury vapor.

In conjunction with these tests the fact might be pointed out that water absorbs ultra-violet

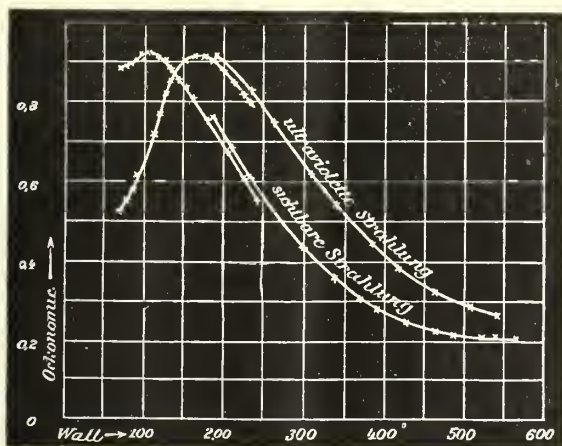


Fig. 5. Shows the Relative Watt Consumption (Economy) of the Visible and Invisible Rays Turning at the "Critical" Point.

rays about as well as quartz; the absorption of various materials has been studied by Pfluger and others at various times. In the medical quartz lamp the water does not touch the quartz tube, as an extra quartz cover prevents direct contact, but the absorption of the water has, of course, the identical effect as if the quartz tube had walls of the same thickness as the space occupied by the water, while the cooling influence of the water effects a corresponding decrease in temperature, pressure of the mercury vapor and a proportional lowering of the output of ultra-violet rays. As unpurified water is continuously used for cooling purposes, this absorption is still increased. It has also been observed by Berthelot that a carbon deposit forms on the

inner walls of the quartz tube and it is safe to assume that the intense action of the cooling medium increases this disadvantage.

The conclusion seems justified that air-cooled lamps are preferable to water-cooled lamps for

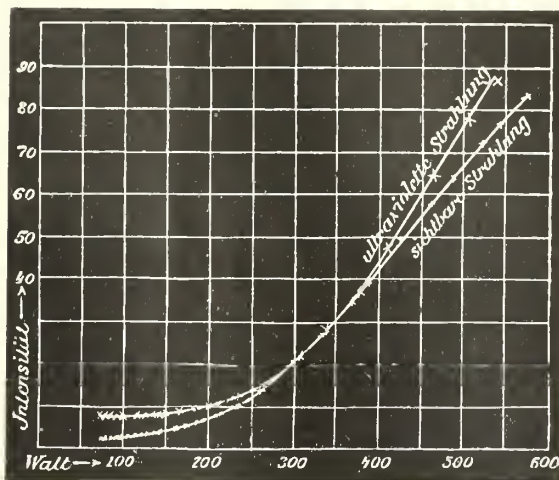


Fig. 6. Shows the Relative Intensities of the Ultra-violet and Visible Radiation as a Function of the Load in Watts.

therapeutic purposes, provided that they are large enough and are operated at a suitable voltage to insure high commercial efficiency, which is equivalent to a larger output of ultra-violet rays. It has furthermore the advantage of a

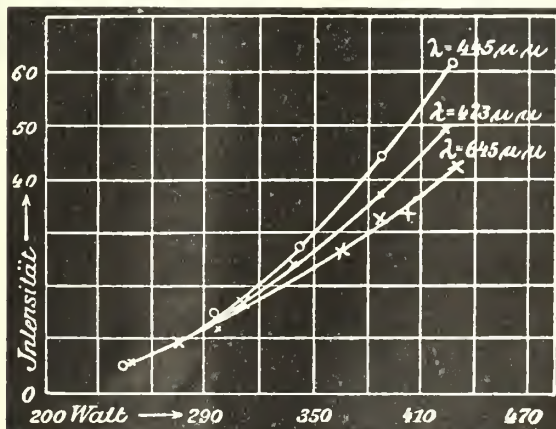


Fig. 7. Shows the Intensities of 3-Wave Lengths as a Function of the Load in Watts, the Shorter Wave Rays Increasing Faster.

wider cone of rays and of possibility of radiating larger areas, at an appropriate distance of the whole body. It is inferior, however, to the Kromayer lamp in some regards: in not having the possibility of bringing the tube near to the

skin, in not permitting filtration of rays through a blue quartz filter and in excluding the deeper reaction by not having the device of compression.

Recognizing the different indications for gen-

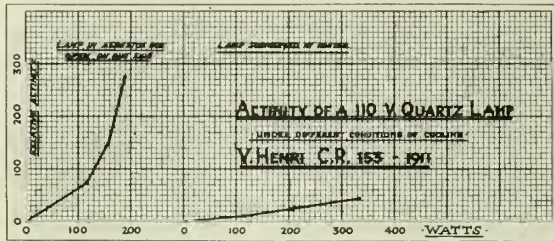


Fig. 8. Shows the Considerable Decrease of Activity Due to Water Cooling.

eral and localized treatment, for superficial and deeper action, for the unfiltered white and the filtered blue light, I have used both the water-cooled Kromayer lamp and the air-cooled lamp.

The latter was designed and constructed for me by Otto Rothenstein, Chicago, with the considerations above mentioned in view. The lamp (Fig. 9) operates on a 220-volt direct-current circuit. The actual voltage across the arc is 185-195 volts. Current consumption at the instant of starting is maximal 6 amperes, which diminishes during regular running to 3.25-3.5 amperes. The length of the quartz tube is 15 cm., diameter 22 mm., which is considerably larger than that of the so-called "Hohensonne." Tests conducted on this lamp for the measurement of the ultra-violet rays output (method of Bering and Meyer, in *Strahlentherapie Bd. I., H. 1 and 2*, of decomposing KI. through the chemical action of ultra-violet rays, coloring it with a solution of starch and discoloring with a solution of 1:400 normal-sodium thiosulphate) showed this output twenty-seven times larger than that of the Kromayer lamp under the same conditions.

The lamp is suspended horizontally in axis of a cylindrical drum, over which a second shell turns, carrying the diaphragm with two shutters. Two levers control their action independently, so that rectangular sets of openings of any ratio and size within the capacity of the device can be had. Each lever is provided with a pointer, indicating on a scale below the size of the opening in one direction so that the diaphragm need not be in sight when it is adjusted.

The whole is suspended from an arm movable

in every direction, the whole arrangement resembling somewhat the large type x-ray tube stands. The series resistance is mounted on brackets projecting from the upright, on which also the controlling switch is placed. A cable of sufficient capacity and an attachment plug complete the equipment, which is entirely self-contained and movable on casters. The lamp is started by tilting it by means of a small chain projecting from the housing and ignites promptly after the current is turned on. As there is no water cooling arrangement the lamp will operate for hours without any attention and wear on the whole apparatus is practically nil.

In reporting my experience with the use of the ultra-violet rays in dermatological practice I start with affections which have given me the best results.

1. *Alopecia areata* seems to be the disease most susceptible to the curative action of ultra-violet rays. I have treated three cases and in all of them have gained complete regeneration of the



Fig. 9. Rothenstein Air-Cooled Lamp.

hairs in treatments varying from 10 to 36 exposures to the air-cooled lamp. The accompanying photograph (Fig. 10) is from a girl 20 years of age who came to me in August, 1915. The affection started eight months previously,

for which she was treated with different medical applications without benefit. She had one large alopecic area on top of head, of round form, about four and a half inches in diameter, and two long oval spots on the sides. Wassermann reaction of the blood and microscopic examination of the hairs negative. She herself, being a telephone operator, attributed the disease to the excessive strain on the head produced by the transmitting apparatus. The second photograph (Fig. 11) was taken in January, 1916, after thirty-four exposures to the air-cooled lamp. With the exception of a few small spots, all the areas are covered with new, long, in parts unpigmented hairs.

2. *Lupus erythematosus*, especially of the scalp, is decidedly benefited by ultra-violet rays

cooled lamp, but relapsed after three months, and I am now using the Kromayer lamp with compression with much quicker results.

3. *Seborrhea capitis* and *alopecia prematura*. The results are not as brilliant as in the former affections, but show some improvement as to justify their exposure to the rays. In alopecia prematura of long standing in a man 35 years of age I have succeeded in inducing a sparse growth of lanugo hairs, which, however, did not continue to show any progress in development.

4. *Onychia*. One case in a girl, 26 years of age, of very long duration. The nails of all fingers were dry and discolored, the edges thickened and brittle, the surface rough and pitted. The affection was not due to syphilis or any mycotic infection. Reducing ointments and x-



Fig. 10. Alopecia Areata of Eight Months Duration.

Fig. 11. Growth of Hairs in Alopecia Areata After 34 Radiations.

Fig. 12. Ringworm of the Scalp of 18 Months Duration.

Fig. 13. Growth of New Unpigmented Hair in Ringworm of the Scalp.

more than by any other method of treatment. One case in a girl, 22 years of age, the disease covering almost two-thirds of the scalp, having lasted four years and resisted all kinds of treatments. The patches were large, confluent, covered with thick scales and crusts, showing deep cicatrization and being painful. After thirty treatments the affected area showed soft cicatrices, all ulcerations had healed up, the scaling disappeared entirely, the surface became smooth and the disease apparently completely checked.

In a case of lupus erythematosus of the cheek, a disk, one inch in diameter, in a man, 28 years of age, of six months' duration, the patch had cleaned up with twelve radiations of the air-

rays, which I have used in this case during half a year, were absolutely without effect. Radiations from the air-cooled lamp showed considerable improvement after the first few exposures.

5. *Pityriasis versicolor*. One exposure sufficient to produce erythema and peeling removes the fungus completely. It is the treatment of choice on account of its cleanliness and swiftness of action.

6. *Lichen simplex chronicus* or neurodermitis, especially in the genito-crural region, I have found reacting to the ultra-violet rays better than to x-rays or medicinal applications.

7. *Ichthyotic skin* of children, especially when associated with persistent eczema, if not very

profuse, I have gained complete recovery after 4-5 repeated erythema doses.

8. *Eczema chronicum*, especially of the hands, in the form of dry scaly patches, at times relapsing into acute exudative swelling (*eczema en plaques*). In several cases, as also in the vesicular dermatitides of the fingers, I have gained quicker results from the ultra-violet rays than from any other method of treatment.

9. *Pruritus* and *urticaria*. The results of radiation in these affections are not uniform. In a number of cases the erythema produced by the light had aggravated the itching and burning, but in most of the cases the itching completely disappeared with the completion of the peeling.

10. *Acne vulgaris*. Curative effects are reported by various authors which I can, in the milder superficial cases, confirm by my own experience. But the erythema produced by the rays is so annoying and comparatively persistent, that only few patients are willing to tolerate it. The invariably good results which can be obtained by the x-rays without the production of any erythema, have kept me from using the ultra-violet rays as a routine method of treatment.

11. *Trichophytosis capitis*. I have tried the air-cooled lamp in two cases, in very small children, in whom it was difficult to apply the x-rays, in both with negative results, but a third case showed favorable results with the precision of an experiment (Figs. 12 and 13). It was in a boy, 9 years of age, with two large patches of microsporia, confirmed by the microscope. I have radiated with the air-cooled lamp only one larger patch on the top of head, treating the other smaller patch (not visible on the photograph, being covered, at place marked X, by overlapping hairs) with medicinal applications. After ten radiations the patch so treated showed a new healthy growth of hairs covering the entire area, while the other unirradiated lesion remained without change. But I had this result only in that one case. The Sabouraud method of x-ray epilation is so safely applicable, that I did not feel the need of new experimentation.

12. *Vitiligo*. One case in a young lady, 22 years of age, with numerous small spots of vitiligo on arms and chest. It was possible by giving an erythema dose to bring out some pigment in the leucodermic spots. The difficulty is in

shielding the margin so correctly as to prevent any rays striking the normal skin, which then becomes overpigmented.

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THE IMPORTANCE OF THE EXAMINATION OF THE LARYNX IN GENERAL PRACTICE.*

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There is a large class of patients under observation by the general practitioner who have definite laryngeal lesions which remain for a long time undiscovered, very often undiscovered until it is too late to do anything for the patient. These lesions range from superficial erosions and ulcerations to cancer of the larynx and from slight paresis to complete paralysis of the vocal cord. A simple examination of the larynx would have brought these conditions to light, but the examination is not made. The reason for this failure does not lie in the difficulty of a laryngoscopic procedure, as it could be easily overcome by the co-operation of the ever-ready laryngologist. The reason for the very frequent and deplorable failure to examine the larynx lies deeply rooted in the mental attitude of the physician who refuses to suspect trouble in the larynx, unless such trouble is absolutely apparent.

It is commonly supposed, even among physicians, that a lesion of the larynx will necessarily give rise to well marked and exceedingly distressing symptoms. It is associated in the mind with the horrors of edema of the glottis, with the dread of laryngeal diphtheria, and with the agonizing paroxysm on the sudden entrance of a foreign body in the subglottic region. For a patient to insure examination of his larynx he must be clutching at his throat, writhe in the agonies of suffocation, or be absolutely voiceless. Nothing else will suffice to engage attention. The appeal of a mild hoarseness, of a little cough, of some barely distinguishable change in the voice, is passed unnoticed. And yet, a mild hoarseness may mean cancer of the larynx, a slight change in the voice may mean a paralysis of a vocal cord.

There is yet another belief entertained by many physicians which accounts for the frequent fail-

*Read before the West Side Branch of the Chicago Medical Society, April 20, 1916.

ure of giving proper regard to the condition of the larynx. It is held that the secondary involvement of the larynx in any general pathological process, occurs late in the disease at a time when the general process is fully developed and easily recognized. It is, therefore, not to be expected that in the early stages of many diseases when there is not enough evidence for even a tentative diagnosis, when the physician is disposed to treat the case expectantly and await developments, he should turn to the larynx in the hope of finding there, of all places, the master key to the situation. How very frequently does it happen that the making of a diagnosis is deferred for an indefinite period for the reason that the case failed to impress the physician seriously. There was nothing in particular to arrest attention; no danger signal is discovered; there does not seem to be any particular cause for alarm. An occasional cough, a mild hoarseness, a feebleness of the voice perhaps, chest examination negative or inconclusive, general condition fair; the physician does not feel justified in alarming his patient. It is most likely nothing serious. A prescription is given, the patient is reassured, feels better for a time, then comes back often to another physician who in his turn fails to be impressed and decides to await developments. And so weeks or months pass away; valuable time lost.

Suppose all this while the patient had an erosion, an ulceration or tumor of a vocal cord, or interarytenoid space, an infiltration of the ventricle of the larynx or the epiglottis, and suppose the condition had been discovered at the earliest opportunity. It would have constituted an imperative call for definite and decisive action as regards diagnosis and treatment.

It will be urged that when such conditions are present in the larynx they are not likely to be overlooked by the physician, much less disregarded by the patient whose complaints of pain and suffering referable to the larynx would make an examination certain. This, however, is not borne out by the experience of the laryngologist.

It is well, then, to point out and emphasize the important fact that serious lesions may exist in the larynx for a long time with but the mildest clinical manifestations. So mild, indeed, that unless one is on the alert, or one examines the larynx as a routine, he may easily overlook them,

with incalculable loss to the patient's chances for cure. And it is also well to point out and emphasize the further fact that the larynx may become involved secondarily quite early in the development of many general pathological conditions, early in period of expectancy and temporizing. So early indeed, that if but discovered it would constitute the only definite finding on which to base diagnosis and treatment.

Tumors of the larynx are either benign or malignant. Of the benign tumors the most frequent are the papillomata. These warty excrescences may exist in the larynx without detection, and for a long time subject to the most bizarre forms of treatment, as the following cases will show.

Case 1. C. D., a blacksmith, forty-seven years old. Well nourished, general health good. Mild hoarseness of several years' duration, becoming worse during damp weather, and embarrassed breathing on exertion. Treated off and on for bronchial asthma for over eighteen months. Came to me in October, 1915. Examination showed a warty growth situated on the left vocal cord near the anterior commissure and almost hidden by the epiglottis. After removal of the tumor there was subsidence of all symptoms.

Case 2. Miss L. K., twenty-nine years old, a singer, with traveling stock company. She was forced to interrupt her work from time to time for the last twelve months on account of increasing hoarseness, irritative cough and some dyspnea on exertion. She was treated with gargles and sprays. No laryngeal examination was made. She consulted me six months ago. Examination of the larynx showed a small papilloma on a slender pedicle situated on the left vocal cord. Its removal was followed by complete disappearance of her inconvenience in singing and breathing.

Two cases which came under my observation and in whom I made the diagnosis of papilloma of the vocal cords have subsequently been operated on by Dr. Freer. Both cases, one a well nourished man of fifty-five years, the other an elderly corpulent woman with chronic valvular disease, have presented the symptoms of mild hoarseness and some dyspnea on exertion. Both patients were treated for various forms of asthma for a long time. The man has had a recurrence of the papilloma on the opposite cord, which was removed six months later, followed by disappearance of symptoms. In the cardiac case also the symptoms were much ameliorated.

Another case of interest in this connection is the following: H. B., forty-six years old, general condition good. He had a good singing voice which he was unable to use in singing for the last five years on account of hoarseness. He also had frequent attacks of nocturnal dyspnea. He was treated for years with gargles and sprays; no laryngeal examination was

made. He was finally advised to have an operation on his nose, for which he applied to the Infirmary. Examination of his nose disclosed nothing abnormal. Laryngeal examination disclosed a large warty growth on his left vocal cord seeming to spring from the ventricle and situated on a somewhat inflammatory base, suggesting malignancy. An attempt was made to remove the tumor by suspension laryngoscopy but was unsuccessful, owing to the fact that the tumor which was situated anteriorly could not be brought into view by this method. The removal of the tumor was accomplished by Dr. N. H. Pierce by the indirect method, followed by the rapid subsidence of all symptoms and the regaining of his singing voice.

Of particular interest is the occurrence of laryngeal papilloma in children which is thoroughly discussed by Sir Wm. Milligan.

What has been said in regard to papillomata, may be said with even greater truth of foreign bodies in the larynx. We are all familiar with the violent paroxysms attending the entrance of foreign bodies into the air passages. It is commonly taken for granted that no larynx will quietly submit to the continued presence of a foreign body. That is why it does not ordinarily occur to one to look for a foreign body in a more or less quiescent larynx. As a result of this mental attitude, it has come to pass that foreign bodies such as jack stones, open safety pins, arrow heads, tacks, rings, coins, etc., have been allowed to remain undisturbed in the throats and bronchi of children for weeks and months. Incredible as it may seem, it appears that the larynx as well as the bronchi meekly proceed to accommodate themselves as best they may to the presence of offending substances after the first attempts to dislodge them fails. The subsequent hoarseness, cough, dyspnea, cyanosis, etc., are not unlike similar symptoms in ordinary affections of the air passages. These cases are, therefore, treated for various forms of bronchitis, laryngitis, pneumonia, tuberculosis, lung abscess, etc., until the foreign body is discovered by laryngoscopy, bronchoscopy or x-ray. Such cases abound in literature and interesting instances have been reported recently by Ingals, Friedberg, Boot and others of Chicago.

The neglect of the early diagnosis of benign tumors of the larynx, while not a serious omission, subjects the patient to futile treatment, and there is always the danger, especially in older patients, of a benign tumor becoming malignant.

It is, however, in the malignant tumors of the

larynx that the failure of an early diagnosis is a most serious omission. In this connection one might read with interest and profit Dr. Freer's exhaustive article "The Diagnosis of Carcinoma of the Larynx," published in the *Journal A. M. A.* Feb. 7, 1903, from which I take the liberty of quoting the following: "It is unfortunately true that ordinarily carcinoma of the larynx is not discovered until nothing but total laryngectomy offers the patient a chance for existence." Among the causes for the lateness of the recognition of this disease is the slight regard paid by patients and even physicians to the persistent hoarseness that may precede the graver manifestations for years as the only symptom. I have known a patient to be sprayed for six months for supposed laryngeal catarrh by means of an atomizer and tongue depressor, while his unseen carcinoma rapidly advanced to a hopeless stage. In another case the laryngoscope was not used until the carcinoma had penetrated the laryngeal cartilages and presented itself as a tumor in the neck. A glance at the literature of laryngectomy will show how late carcinoma of the larynx usually comes to the operator. Chronic hoarseness, especially in men past forty should make a laryngoscopic examination an imperative duty to all practitioners. And again quoting the same author: "In the majority of cases hoarseness is the only evidence of commencing carcinoma for a long period, generally from one to three years. Chiari mentions a case in which hoarseness lasted for nine years before other symptoms made their appearance, and voice disturbance in his other cases extended over an average of two years before there was a change in the manifestations." The symptom of pain appears in the later stages of carcinoma characterized by sloughing and ulceration, and takes the form of otalgia occurring during swallowing or spontaneously and darts from the larynx to the ear, the angle of the jaw and the back of the head.

It is commonly held that destructive laryngeal lesions occur late as a complication of pulmonary tuberculosis. However that may be, it not infrequently happens that the discovery of a tubercular ulcer in the larynx is the first thing to attract attention to the case, as the following will illustrate:

A. G., twenty-two years old, well nourished young man, clerk in a mail order house, was treated in various dispensaries for cough for about nine months. His

tonsils were removed by one physician, a nasal operation was advised by another. He came to the infirmary in January, 1915. He did not complain of pain anywhere, nor did he appear ill. His only complaint was that of taking cold easily. He was working at the time and was anxious to keep at work, for he was the only support of his widowed mother. The temptation to temporize was great. But an examination of his larynx disclosed an ulcer on the left vocal cord, erosion of the interarytenoid space and congestion of the epiglottis. A tuberculin test proved positive. Bacilli were present in the sputum and the right apex and base of the middle lobe were found to be involved. The patient was sent to a sanitarium where, unfortunately, he came down with an acute lobar pneumonia on the second day of his stay there, which terminated fatally. It is my belief that a careful examination of the patient's larynx nine months before I saw him would have disclosed, in all probability, a tubercular laryngitis, which would have stirred up both patient and physician to proper action with the probable saving of the patient's life.

The point to be emphasized in this connection is that tubercular laryngitis occurs early in the course of pulmonary tuberculosis, and is the cause of the irritative cough when chest conditions are as yet indeterminate. Moreover, this laryngitis does not manifest itself by painful or alarming symptoms. It is only in the later stages when the deeper structures of the larynx become involved with perichondritis and ulceration of cartilages that the condition becomes painful. And I can cite you a case of an old man in advanced pulmonary tuberculosis and extensive laryngeal involvement, who, nevertheless, did not complain of his throat, the laryngeal condition being discovered on routine examination. Laryngeal involvement is not necessarily a self-evident condition. It may be overlooked. But when one is on the lookout for it, it may be discovered quite early in the progress of the causal affection and greatly aid in an early diagnosis.

When we turn to conditions of immobilization of a vocal cord and the laryngeal nerve paralysis we find the same observations to hold true with equal force. Vocal cord fixation when not due to paralysis of the recurrent laryngeal may be caused by tubercular, gummatous, or malignant infiltration of its musculature, or the crico-arytenoid articulation. It is rarely due to rheumatic arthritis of that joint. This fixation may occur quite early in the disease, its discovery would compel immediate investigation of the cause. Yet the condition is frequently overlooked

for a long time because neither the objective nor the subjective symptoms of vocal cord fixation are at all pronounced. The same is true of nerve paralysis.

Paralysis of the recurrent laryngeal nerve may be either central or peripheral in origin. When peripheral it is due to pressure upon the nerve exerted by aneurysm of the aorta or its main branches, by cervical and mediastinal tumors, by glandular enlargements within and without the thorax, by cancer, abscess or cyst of the lung, and by tubercular infiltration of its apices. If central in origin, the pressure, however caused, is exerted within the cranium. Now, I wish to make the point, that long before the typical symptoms of aneurysm, for instance, become clinically manifest, the distending aorta may exert sufficient pressure to paralyze the left recurrent laryngeal nerve. Yet neither the subjective nor the objective signs of this paralysis are necessarily marked. They may be so mild as to be disregarded by the patient and overlooked by the physician. Imagine, then, the great value of the discovery of a laryngeal paralysis in such an instance! At once the physician's utmost skill and attention is summoned as by a trumpet call. All possible causes of laryngeal nerve paralysis are marshalled in view, aneurysm is suspected long before it has frankly manifested itself, a search is made, every clue is followed and an early diagnosis established.

It may be asked how it is possible for a laryngeal paralysis to be passed unnoticed. This will become evident on a brief consideration of the anatomy and function of the larynx.

The larynx is the isthmus connecting the lungs with the upper respiratory tract. It is guarded by the vocal cords which open and close it. It has a double function—respiration and voice production. For purposes of respiration the cords must separate moderately in quiet breathing, and widely in deep inspiration. For purposes of voice production, the cords must stand apposed. As is seen, these two functions are antagonistic and an impediment in the one function tends to favor the other function. The muscles that abduct the cords may be said to be the respiratory group, while those that adduct the cords may be considered the phonatory group. The superior laryngeal is the sensory nerve of the larynx. Its motor action may be disregarded

as unimportant for the purposes of our discussion. The inferior or recurrent laryngeal is the motor nerve for both the respiratory and phonatory groups of muscles. Let us suppose that the left recurrent laryngeal nerve, the one most frequently involved, is pressed upon by an aortic aneurysm completely paralyzing it. Both abductors and adductors are inactive, the left cord will remain midway between adduction and abduction, or in what is known as the cadaveric position. Quiet breathing is not interfered with in such a case, it is only on an effort at deep inspiration, as in running, or other out of the ordinary exertions, that embarrassment will ensue. So much for the respiratory function.

How will this complete paralysis of the left recurrent laryngeal affect the function of voice production? It is true that the left cord is unable to meet its fellow in the median line. But in such instances the right vocal cord has been known to display a truly beautiful sense of neighborly helpfulness so sadly and conspicuously lacking oftentimes in larger biological units, will cross the middle line towards its helpless brother, approach it in loving tenderness and vocalize in unison. This vocal product may, of course, not be perfect, it may not ring quite true. Its timbre may be cracked, it may possess a quality which the French authors term "bitonal," and if one is not alert to note this voice modification, slight in some cases, there will be little else to arouse his suspicion.

Suppose the recurrent laryngeal is only partially paralyzed. According to Semon's law, the abductors are affected while the adductors escape in such cases. The active adductors fix the cord in the median line, a position favorable for phonation, while the healthy cord, receding widely from the median line, can provide sufficient space for the ordinary demands of breathing.

It will, therefore, be seen that a patient in the early stages of aortic aneurysm may show for a time no other clinical symptoms than a slight modification of the voice which he himself may disregard, but by which the alert physician, taking note of little hints, may be led to investigate the larynx and light upon a finding which will carry him triumphantly to the victory of an early diagnosis.

Henri Aboulker reports twenty-two cases of laryngeal paralysis of various causes. He finds

that in all these cases the paralysis occurred early in the course of the underlying condition. He further finds that this paralysis in most cases betrayed itself only by "bitonality" of the voice. He quotes Lermoyez as saying: "The larynx is the manometer of the thorax, it is the gauge of intrathoracic pressure." By a study of the larynx one may detect abnormal tension in the lungs. The reason for this will be appreciated when it is recalled that the recurrent laryngeal nerve in its long course down under the arch of the aorta on the left, under the subclavian artery on the right and up again in the tracheo-esophageal recess to the larynx, must, of necessity, be involved in the various pathological processes of these regions. The longer course of the left recurrent laryngeal into the thorax, and its relation to the arch of the aorta may explain the greater frequency of involvement of the left laryngeal over the right, which in Aboulker's series was seven to one.

While the discovery of an existing vocal cord paralysis or fixation is thus properly emphasized, it must be admitted that the attempt to determine the underlying condition is not always attended with success. In Aboulker's twenty-two cases the cause of the paralysis could not be determined in four cases. Of the remaining eighteen cases the causes were found to be as follows: Tracheo-bronchial glandular enlargements, three; pulmonary tuberculosis, seven; aortic aneurysm, two; carcinoma of the lung, one; hydatid cyst of the lung, one; cancer of the esophagus and thyroid gland, one; hysteria, one; cerebral syphilis, one; amyotrophic lateral sclerosis, one. The characteristic of hysteria paralysis being, that contrary to Semon's law, the paralysis affects the adductors while the abductors keep the cords widely open, rendering the patient voiceless.

The following case illustrates the difficulties met in attempting to determine the underlying cause of laryngeal paralysis. This, however, should only add zest to the ambitious investigator. I. L., forty years old, married, seven children living and well. Family history negative, no history or trace of specific disease. The patient is a well nourished, healthy looking man. Complaint, hoarseness of sixteen months' duration. Examination of the larynx shows paralysis of the left vocal cord in the median line. Wassermann test was negative. Treatment with k. i. produced no improvement. There are no enlarged glands on the left side of the neck. A radiograph taken from the pa-

tient was interpreted as pointing to aortic aneurysm of which there were no clinical manifestations. The diagnosis of aneurysm tallies somewhat with some of the features of the clinical history. There is noticed a shifting of the clinical picture from phonatory to respiratory symptoms. At the onset of his trouble he had suffered chiefly from some degree of dyspnea. There was no special difficulty about his voice. Some months later his breathing began to improve, while the voice took on a decided hoarseness and feebleness. One morning he awoke to find himself voiceless. As his voice began to improve his breathing again became embarrassed.

This shifting of the clinical picture from the phonatory function of the larynx to the respiratory function may be suggestive of aneurysm for the following reasons:

The pressure exerted by solid tumors, especially of the malignant type, is a steadily progressive one. The pressure exerted by an aneurysm is, on the contrary, a fluctuating one. Under rest and other suitable treatment the aneurysm may diminish in size. Again, the formation of a mural thrombus may greatly diminish the lumen, the blood stream, the distention and pressure. And this is the way these changes are registered in the larynx:

Referring again to the above case, we will assume that the symptoms at the onset were due to a partial paralysis of the recurrent laryngeal nerve. We have already seen that such cases follow the well-known law that the abductors are involved while the adductors escape. The paralyzed cord is fixed in the median line. This position is unfavorable for respiration but not unfavorable for phonation. Hence it is that such a condition will clinically manifest itself by varying degrees of dyspnea, while phonation is not embarrassed. Suppose the aneurysm increased in size, exerting a pressure sufficient to effect a complete paralysis of the recurrent laryngeal, that is of both abductors and adductors, then the paralyzed cord stands midway between abduction and adduction, a position which is more favorable for breathing than for phonation. Later on an improvement in the voice may result, either by the healthy cord learning to come across the median line, or an improvement in the aneurysmal pressure has again changed the complete paralysis into a partial one.

In conclusion, it may be remarked that the general practitioner is in a sense the central figure around whom are grouped the various specialties.

Those organs regarding which the general practitioner entertains a lively concern stand a better chance of being early investigated. It is the purpose of this article to bespeak his solicitude for the larynx.

There are two methods of conducting an examination of the larynx: the indirect, where the laryngeal image is studied with the aid of a laryngeal mirror; and the direct method, where the larynx is so manipulated by appropriate speculi as to bring its interior into direct line of vision. And of late there has been added a procedure known as suspension laryngoscopy, where direct laryngoscopy is accomplished with the aid of a suspension apparatus. The technique of the various procedures, as well as the interpretative appreciation of a laryngeal picture, may be acquired by the general physician. The best results, however, will probably be attained from teamwork between the physician and the specialist.

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A RESUME ON FOREIGN BODIES IN THE STOMACH, WITH A REPORT OF AN INTERESTING CASE.

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Concerning amazing breadth of variety both in the diverse nature of the things dealt with and in the number of objects included, nowhere in the realm of surgery are there more interesting statistics than those relating to the lodgment of foreign bodies in the stomach, as depicted in the

literature and brought to our attention by personal experience.

Probably the first authentically reported is that of Schwabe (Hagens), who in 1635 removed a table knife from the stomach forty-one days after its ingestion, and from that day to this we read quite frequently of knives, forks and spoons, not to mention instances in which the china-closet has contributed an attractive tid-bit.

In 1855 a bar of lead nine inches long was the object of choice, the second similar being a bar of the same metal ten inches long, removed by Dr. Bell in 1893.

Surgical instruments were swallowed as long ago as 1883, when Kocher removed a broken coin catheter from the stomach and are again noted in 1907, when, during the use of a whalebone esophageal probang, the instrument was broken and seven inches of whalebone and a sponge tip left in the stomach (Berie).

Gussenbauer (Defontaine) removed a broken sword blade, $10\frac{3}{4}$ inches long, in 1883, about which time artificial teeth appeared on the list, in the cases of Billroth and Crede. From now on we find not so much single objects, but rather the presence of aggregations of both numerous and varied bodies. Caven and Weir report the swallowing of a knife, fork and spoon by an insane patient, who retained them for three months before death.

Beck, in 1911, removed nineteen pieces, including a silver dollar, and several jack knives with bone handles, from the stomach of a patient at the Cook County Hospital. The operation was observed by the author. Several of the bone handles had been partially digested so that the blades, rivets, etc., were loose.

Benjamin, in 1907, treated the case of a glass and nail-eater, who had habitually eaten pieces of glass as large as his thumb for a period of twenty years, and for the preceding five years had swallowed 8- and 10-penny nails. On operation, fifty-two nails in various stages of erosion and five pieces of glass were removed. The nails were in bunches and a number imbedded in the stomach wall and surrounded by exudate.

In the same year, the autopsy of an insane patient revealed in the stomach, one piece of $\frac{1}{2}$ -inch rubber tubing 18 inches long; one piece of $\frac{1}{2}$ -inch rubber tubing 14 inches long; five large red bandanna handkerchiefs; one teaspoon; one

necktie, with scarf pin in place; one pair of spectacles; one rodent's skull; and a piece of rubber band from a suspender. (Smith.)

Gastrotomy on another insane patient resulted in the removal of 14 broken spoons and their handles, and in another, a victim of melancholia, forty-two nails were found. (Lancet, London; 1911, i., 625.)

Vanderwest and Mills found on necropsy of an insane patient, the remarkable number of 1,446 foreign bodies, mostly nails, screws, bolts and pins weighing in all 2,268 grams. Two years later, in 1913, Matthews removed an aggregate of 1,149 hairpins, pins, nails, etc., weighing one pound and two ounces, from the stomach of a victim of manic-depressive insanity. Very recently Tilton reports the swallowing of five spoons by a psychopathic patient, resulting later in a perforation of the jejunum and peritonitis.

It will be observed that, in the cases so far noted, the entrance of the foreign bodies into the stomach of the adult is generally referable either to habit, as in nail-eaters as in Pollard's case, or to mental conditions affecting judgment. These constitute the greater group of those suffering from lodgment of foreign bodies, the lesser being the number of recorded cases where the victim has been a child. The latter are, relative to the number of times foreign bodies are swallowed, comparatively rare, as a child seldom swallows any objects of considerable size and small bodies, as coins and buttons, and even pins, tacks, etc., are usually passed in the stool without having occasioned any serious trouble.

Some fifteen years ago the author witnessed Dr. Charles Adams remove a finishing screw $1\frac{1}{2}$ inches long from the stomach of an infant.

McCartney removed a button-hook $3\frac{1}{4}$ inches by $\frac{3}{4}$ -inch in size from the stomach of a six months' old baby and Hitzrot reports the case of a fourteen months' old child who swallowed a stick-pin with a Lincoln-penny head. In this case the gastrotomy was performed seven days after and the point of the pin found imbedded in the stomach wall. Mayo Robson removed 152 pieces, tacks, nails, etc., from the stomach of a girl 12 years of age.

Investigation of these cases will show that the discovery of the foreign bodies has been comparatively easy, the x-ray now being of the utmost assistance. The history of the case, when habit

is to be blamed, is of value, but among the insane and in the cases of children, this loses practically all of its value. The symptoms resulting from the lodgment of these foreign bodies in the stomach are not invariably as definite as one would at first thought suppose, and it is not always the small bodies that give the most elusive symptoms. Furthermore, gastric disturbances, while they may be perceived subjectively, do not invariably progress to the stage at which body nutrition is disturbed, a point rather unusually demonstrated by Edgerton who found a heavily corroded spoon in the stomach of a dissecting room cadaver who was in an excellent state of nutrition.

The case which we will now report is remarkable in the size of the object, a case knife $9\frac{1}{4}$ inches long, and weighing three ounces, and in the length of time during which incorrect diagnoses were held.

Mrs. H., aged twenty-four years, married and has two children. Has always enjoyed excellent health until eight months ago, when she was taken ill with typhoid fever, and was cared for at the County Hospital. She recollects getting up in the night in a period of mental disorientation in the course of the disease, and going to the kitchen, purloining a knife, and, having returned to bed unobserved, proceeding to swallow it. The effort required and difficulty met in forcing it down her throat is still clear in the mind of the patient, but so strong was the impulse that she was unable to desist, finally succeeding in causing the instrument to pass into the stomach. In the morning she told the nurse and physicians of her experience, but they, remembering, no doubt, the mental condition of the patient on the preceding evening, paid no attention to her story. She repeatedly complained of the incident to the House Staff, but no consideration was given to the matter. The patient, however, thoroughly believed that the event had taken place, though unable to convince anyone else. She finally left the hospital convalescing and returned to her usual duties, at length doing her housework and caring for her two children.

At times, following the exertion of doing the family washing, scrubbing the floor, riding in the street car, etc., she would be taken with severe pains in the abdomen, colicky in character; vomiting was not present at any time. For this, several neighborhood physicians were consulted, and tonics and dyspepsia tablets prescribed. The patient did not improve, the spasms recurred, and she continued to lose weight. Her weight, previous to the fever, was 140, and at the time of operation 110 pounds.

After a period of eight months following her discharge from the County Hospital, during one of those severe attacks, she consulted Dr. John J. Pflock, one

of our associates, who, after a thorough examination, referred the lady to us for final diagnosis. Mrs. H. had long since ceased to tell the story of the knife, and made no mention of it to either Dr. Pflock or to myself. On November 19th we made a complete physical examination, finding a mass about the size of a lemon in the right hypochondriac region, so sensitive that definite palpation was out of the question. It was fixed and associated with much rigidity. Perigastric abscess or a right pyonephrosis were the tentative suggestions. Further examination by the x-ray was advised, to determine the exact location of the trouble, and arrangements were made for this to take place Saturday, November 20. As we were leaving the patient, she called to us and asked if it were possible for one to swallow a knife. We discussed the status of this matter and mentioned a case reported by Dr. Bernays, many years ago; whereupon Mrs. H. retold her story. Without paying any particular attention to the possibility of this being the fact, we explained that if the knife was there, it would be shown by the x-ray. We left orders for a picture of the right hypochondriac and kidney region.

Next day the radiograph was made as ordered and upon its development the Roentgenologist was surprised to see a dense shadow, decided the plate to have been previously exposed, and took a fresh picture. The second plate showed the same thing; inspection revealed the shadow to be that of part of the knife, thus confirming the story of the patient.

On the following Tuesday Mrs. H. was submitted to operation at the West Side Hospital. A gastrotomy was made, Dr. J. R. Kauffman, Dr. John J. Pflock, and the house surgeon, Dr. John T. Sullivan, assisting. Nitrous oxide-oxygen anesthesia was administered by Dr. R. R. Bosworth.

A four-inch median line incision was made between the ensiform and umbilicus and, upon opening the peritoneum, the anterior wall of the stomach presented, to all appearances, normal. Upon digital



Fig. 1. Patient Standing.

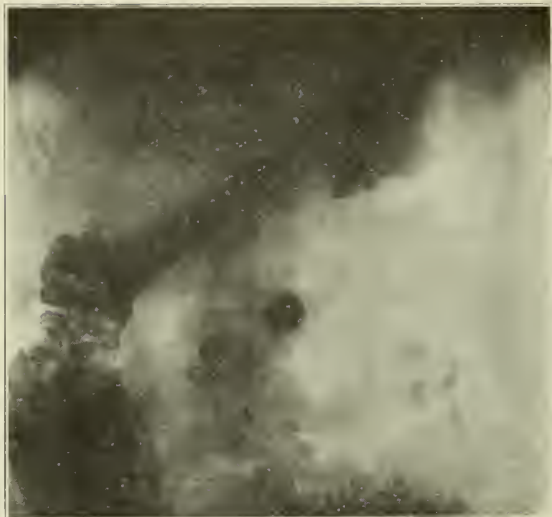


Fig. 2. Patient Prone.

exploration a large mass made up of omentum and contiguous viscera was found at the right lower border of the stomach. The knife was easily palpable in the posterior portion, the handle, which was down, being more or less fixed. Upon further examination the blade or upper end was found to be movable and with gentle pressure of the fingers underneath we were able to dislodge the tip and pass it along on the anterior wall of the stomach to a point easily made accessible by enlarging the skin incision one inch. Removal was accomplished thus without any tension or traumatization. The anterior wall of the stomach was grasped and elevated out of the abdomen and, after completely walling off and protecting the general peritoneal cavity by laparotomy sponges, the organ was cut transversely, enough to admit a finger. With the left hand the blade was again displaced and when it appeared at the opening was easily withdrawn. The stomach wall was closed with a double purse-string suture, reinforced by a continuous Lembert, linen being used. The abdominal wound was, as usual, closed without drainage, the last skin suture being tied twenty-four minutes from the time of beginning the primary incision.

The patient recovered consciousness without delay and was not distressed by nausea or vomiting. She was placed in the Fowler position and the stomach put to rest for three days, sips of water being administered occasionally. Normal saline solution, ounces vi, was given high into the colon every three or four hours. Upon the eleventh day patient was up and about, leaving the hospital on the thirteenth day following operation.

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SELECTED CHAPTERS ON THE TREATMENT OF NERVOUS DISEASES.*

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In the time allotted to my portion of this symposium I shall briefly discuss the subjects of epilepsy, brain and spinal cord tumor, and these chiefly from the surgical viewpoint.

Epilepsy. Though few physicians of today dispute the propriety of an operation for a recent case of epilepsy caused by skull fracture, subdural hemorrhage, or brain tumor, there are still those who strenuously oppose surgical interference for cases of traumatic epilepsy not of recent date. Among the last class must be counted some neurologists with ultra-conservative tendencies. Of course, trephining is frequently done as a matter of prophylaxis against the development of epilepsy in cases of skull fracture, with or without convulsions; also in those cases presenting evidence of trauma in the form of depressed scars in the skull, especially when sensitive to pressure. These are the directly traumatic forms of epilepsy. More numerous, however, are the cases which may properly be called indirect traumatic epilepsy. These are the cases in which there are no visible signs of skull injury, and yet in which such trauma has actually occurred perhaps a long time ago. In these cases, too, we often lack a reliable history of trauma, for it is known how little dependence can be placed on the statements of relatives, who attribute much importance to insignificant events, and perhaps ignore the real etiologic factors.

In the light of what follows, I believe we have been altogether too conservative in attacking epilepsy in a surgical way.

*Paper read before the joint meeting of the Chicago Medical and Chicago Neurological societies, March 15, 1916.

Tilmann, who operated on twenty cases of traumatic epilepsy with rather indefinite signs of trauma, found only one case without pathological changes in the brain—in all the others there were distinct evidences of chronic inflammation in either skull or membranes. In addition, he found edema of the arachnoid and numerous white striæ following the blood vessels—an evidence of chronic inflammation of the arachnoid. Siegmund Auerbach, the author of a splendid monograph on the surgery of the nervous system, and to whom I am indebted for much contained in this article, states that similar findings have been frequently observed in cases of so-called idiopathic epilepsy, and he has been seriously debating the question of operation for all cases of epilepsy. In an interesting article on the surgical treatment of traumatic epilepsy, Tilmann observes that trauma in a region other than the central convolutions may take ten years to produce epilepsy, while six months may be sufficient to establish epilepsy, provided the motor areas have been traumatized.

Though much work has been done on the metabolic changes in epilepsy, little or nothing was gained for therapy. It is but natural, therefore, that we should turn for guidance to the pathologist.

Perhaps the best studied organic disease of the brain frequently associated with epilepsy is the disease called infantile cerebral palsy. The laboratory reactions in the association studies of the epilepsy of cerebral palsy being practically identical with those found in idiopathic or genuine epilepsy, we may infer that the pathology is also similar. The brains of patients with encephalitis, terminating in cerebral palsy, show numerous scars and organized connective tissue over the cortex, causing more or less constant irritation of the brain centers, and culminating in the epileptic convulsion. Marie and Freud, basing their opinions on postmortem findings, believe that the so-called idiopathic or genuine epilepsies are nothing more nor less than rudimentary types of cerebral palsy, and they place, therefore, epilepsy among the organic cerebral disorders. Following out this idea, Redlich reinvestigated the entire subject from pathological and clinical viewpoints. His investigations lead him to insist on the necessity of careful clinical examinations of the epileptic—searching for slight motor disturbances, and apparently in-

significant palsies in the cranial nerves, such as the facial and hypoglossal, as well as for differences in the reflexes on the two sides, besides noting the existence of even mild aphasic disturbances, hemianopic and other focal signs. Of value in this connection may be a history of headaches, localizable in certain areas; also tenderness on percussing certain parts of the head, and, lastly, the presence of vaso-motor phenomena when limited to one side. Needless to state that the discovery of the Babinski sign or of one of its equivalents localizes definitely a lesion on the opposite side. Though the bulk of the brain is still occupied by so-called "silent" areas, yet in a large number of cases some one symptom will point to the seat of trouble.

It is now known that both varieties of epilepsy have a similar pathology, for the histopathological findings in the brains of patients dead from epilepsy have revealed numerous changes in the form of chronic inflammation, so-called irritation encephalitis. When we reflect that there are very mild forms of encephalitis in childhood, types which formerly were considered either simple febricula or indigestion, we need not wonder that many an unrecognized encephalitis in childhood was subsequently diagnosed and treated as a case of idiopathic epilepsy. These researches seem to prove that there are no radical differences between the various types of epilepsy, that such differences, if they exist, are not of kind, but merely of degree.

Reasoning from the foregoing premises, then, the surgical treatment of epilepsy should receive our serious consideration.

The first question to be answered is: Which cases of epilepsy should be referred to the brain surgeon?

Only those cases should be considered proper subjects for surgery who have received prolonged treatment by means of good-sized doses of bromides, have followed the prescribed dietetic and hygienic rules, and yet have received no benefit.

Operation is contra-indicated in cases of repeated *petit mal* attacks, and also in the psychic forms of epilepsy.

Obviously, the cases of traumatic Jacksonian epilepsy which were not benefited by the usual treatment should be operated on, for the probability of dementia is great, and the operative risk small.

Cases of Jacksonian epilepsy, not of traumatic origin, but probably caused by cortical disease, such as tumor, cyst, or abscess, are proper subjects for operation. Even if the operation prove to have been only an exploratory one, it was worth while performing, for many lives have thereby been made more endurable. An operation to be of benefit should be undertaken before the epileptic habit has been thoroughly established.

Cases of long standing, in whom there was already beginning dementia, have not infrequently benefited by operation.

Positive indications for operation are: An increase in the number of attacks, as well as the development of paralysis and signs of beginning deterioration.

Operation yields the best results during the periods of childhood and early adult life, for at these times the recuperative powers are greatest, while patients past middle age are not nearly as good risks and should therefore not be urged to undergo operation, except when the indications call loudly for interference.

In the idiopathic cases one may be guided by the aura, which may always begin on one side, or the appearance of definite post-convulsive disorders limited to one side; there may be a definite history or evidences of trauma or of past encephalitis, and, lastly, the history of a beginning as unilateral convulsions may be helpful.

Having decided to operate, what shall the operation consist of? When the indications as to the exact seat of the lesion are not clear, a decompression operation over the right fronto-temporal or subtemporal region should be done, thus sparing the speech centers on the left side. With a history or signs of head injury, the site of trauma should be chosen for operation. Where a depression in the skull from trauma is present, the probability of the convulsions being caused by dural adhesions at this point should suggest it as the place of surgical attack. When distinct paresis is in evidence unilaterally, or if convulsions are limited to one side, it is best to enter the brain on the side opposite. Should the operator, after opening the skull, find a subarachnoidal cyst or tumor, he will no doubt remove the latter. When signs of past trauma to the arachnoid or dura have been discovered, modern operators first accurately determine the seat of primary irritation by means of unipolar faradization and then

operate. After removal of a subcortical cyst, Krause advises to sacrifice a portion of the surrounding brain substance, as there is a probability of the diseased tissue subsequently causing recurrent attacks of epilepsy. Indeed, in some cases it may be best to excise a portion of the entire depth of the cortex down to the white substance, provided proper localization of the exact beginning of the convulsion is possible. While in the majority of cases the right side is to be preferred, yet when symptoms point directly to the left side as the seat of trouble, there should be no hesitation in excising a portion of the left hemisphere. Authorities differ on the amount of cortex mass to be excised; some believe that two to three millimeters are sufficient, while others advise excision of the entire gray cortex down to the white substance. Following the operation, every patient should again be placed on the usual drug and dietetic treatment for epilepsy, which includes a *salt- and meat-free diet*.

In concluding these remarks on epilepsy, I may summarize by the statement that in view of the helpless condition of a large number of epileptics inhabiting our public institutions, and the still larger number who remain at home and are permitted to become demented, it is our duty to give much attention to these unfortunates. Many can and should be helped by surgical means directed to the source of trouble, which is not, as some abdominal surgeons maintain, in the intestines, but rather, as we believe, in the brain.

Brain Tumor. The statement that the treatment of the majority of cases of tumor of the brain and of its membranes is surgical should need no comment. Experience teaches that patients with brain tumor not only suffer intense headache, in addition to the other symptoms of pressure, but the majority of them eventually become blind. No wonder the celebrated Horsley characterizes the so-called "expectant" plan of treatment of brain tumor as an inhuman and barbarous procedure. In this light it is remarkable with what pertinacity short-sighted physicians oppose operation when neurologists have made a definite diagnosis of tumor of the brain, and perhaps accurately localized the tumor, which is not always possible. Admitting even that in some instances symptoms of brain tumor have been simulated by the so-called pseudo-tumor of Nonne, and the so-called meningitis serosa in-

terna of Quinke, operation has benefited the patients and was the only logical treatment. Though Oppenheim believes they might have recovered without operation. Borchardt is firmly convinced that these patients should be operated on. While it is true that the statistics of cases of brain tumor successfully operated on are not as brilliant as we wish them to be, even if one out of every ten cases has been saved the miseries of a progressively growing tumor, the attempt was worth the effort. Besides, the new method of bloodless operation, the two-step modification, combined, as it may be, with local anesthesia, robs operation of many of its terrors. When we further reflect that our diagnostic methods have been steadily improved during the past few years, especially the technic of Roentgen examination, which reveals to our eyes the changes in the sella turcica, as well as the indentations of the convolutions on the internal table of the skull and also the enlargement of vessels, caused by an increase of pressure—all of which can be seen in any good radiogram; further, that the examination of the spinal fluid almost enables us to exclude syphilis; and, last, but not least, the new differential diagnostic work of Bárány, which helps to confirm the presence or absence of cerebellar disease—diagnosis of brain lesions has become comparatively easy. One of the things which must be repeatedly emphasized is that no case should be operated on until every diagnostic resource has been applied, first, to ascertain the existence of a brain tumor, and, secondly, to definitely localize the same. For it is well known that occasionally an insignificant sign, such as asymmetry of the face, or a slight difference in the tendon reflexes, or in sensation, of no importance by itself, may in connection with other signs and symptoms constitute a focal sign. Indeed, to ascertain merely the presence of a slight muscular twitch, epileptiform in character, or a difference in sensation, may be the equivalent of the making of a correct localizing diagnosis.

When, owing to the absence of localizing signs, an exact focal diagnosis cannot be made, the case is one for palliative operation, provided, however, that there are present the general symptoms of brain pressure, such as headache, vomiting, choked disc, vertigo, slow pulse, convulsions. I firmly believe that the brightest star in the firmament of brain surgery is the decompression oper-

ation. On close investigation, it will be found that the majority of cases of hypophysis disease operated on have been merely decompressed. The most urgent object of the palliative operation of cerebral decompression, whether it is done on the right temporal or parietal, the occipital or basal (hypophysis) regions, is to save vision after the appearance of choked disc. When papilledema has been allowed to become an optic atrophy, the time is passed for any kind of head surgery. In this connection I wish to plead for the operative treatment of gummatous tumor. Even specialists of fame, both here and abroad, have for too long a period pinned their faith to antispecific treatment in cases which were rapidly becoming blind, persistently decrying operation, while permitting the last ray of light to be shut out of the patient's eyes by the oncoming atrophy. Never shall I forget the case which I saw in 1903 in the late Gussenbauer's clinic in Vienna. The patient, an undoubted sufferer from cerebral syphilis, had wandered from one clinic to another, until he reached Europe's biggest neurologist, who advised against operation. Eventually, when the patient became almost blind and his mentality was reduced to that of idiocy, he was referred to Gussenbauer for operation. An enormous gumma was found occupying almost the entire frontal lobe. The tumor was removed, but too late to save either life or vision.

Horsley's advice not to spend more than six weeks' time with antispecific medication appears to me quite sound. If, after the expiration of this period, no benefits accrue from large doses of mercury and iodides, and no contraindications are present, he operates at once and resumes the antispecific treatment later.

Spinal Cord Tumor. Perhaps one of the most promising fields of the surgery of the nervous system is that relating to spinal cord tumor. Now that physicians have begun to think of the possibility of cord tumor when they encounter a case of persistent neuralgia, many more cases of spinal cord tumor are being diagnosed and operated on. Success in this field is more easily achieved than, for instance, in the brain, firstly, because of the ease with which a tumor can usually be localized, and, secondly, because the operation in the hands of only moderately skilled surgeons is usually unaccompanied by the complications incident to the surgery of the brain. It is, therefore, regrettable

that the spinal cord, unlike the brain, is not more frequently explored for the existence of tumor. Since Elsberg, of New York, has shown that even tumors growing in the substance of the cord are amenable to successful removal by his two-step operation, there are practically no contraindications left for laminectomy of supposed cord tumor. Quite recently we have learned of the existence of circumscribed collections of fluid in the arachnoid, giving rise to symptoms identical with tumor, and it is especially in such cases that brilliant cures are achieved by the mere incision and dissection of the spider-web-like sac circumscribing the fluid and exerting pressure on the cord. In conclusion, I wish to lay stress on the necessity for calling in surgical aid in any case of obscure spinal trouble. Many are the cases that could have been saved an untimely end had they been given the opportunity of an exploratory laminectomy. With the globulin test, the lymphocyte count and the Wassermann test to exclude syphilis almost to a certainty, there is no excuse in feeding a patient to death with iodides in the hope that "something may happen."

25 E. Washington St.

NEURASTHENIA.*

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One fact the recent studies of the psychoneuroses has brought out is that idiopathic or essential neurasthenia is not as common as is generally supposed, or as frequent as ordinarily diagnosed.

It is admitted that there is a predisposition on the part of those who develop neurasthenia, an instability of the nervous system, a neural inadequacy that is brought forth by some physical disturbance or metabolic imbalance. In other words, every case of neurasthenia has a possible organic disorder underlying it and is, therefore, more often a symptom of disease than a disease per se; really manifestations reflexing from some somatic disease.

The term neurasthenia, therefore, is like the term rheumatism, one which covers so many different states as to have no satisfactory meaning in medicine. It is an unfortunate and vague medical name the use of which is in most in-

stances unjustified. It is made much of by the physician who makes a cursory examination and who treats symptoms generally, regardless of etiology.

Inasmuch as the symptoms of neurasthenia are merely expressions on the part of the nervous system of the action of some irritant or physiologic perversion, or is probably a nervous affection with lesions which still escape detection, it devolves upon the clinician to make a careful and persevering search to find the cause. Indeed, a judicious and exhaustive physical examination serves the double purpose of setting at rest whether or not there is an organic disease, and convincing the patient that the physician understands his case.

"To err is human, to diagnose divine," is aptly applied to neurasthenia. Continued fatigue in the physical and intellectual spheres, irritability, pressure headache, shifting pains, insomnia, gastric and intestinal disturbances, diagnosed as neurasthenia without searching for a probable organic basis, or considering them as secondary to something more serious, is an error of omission on the part of the physician. It bespeaks carelessness and medical incompetency that is not infrequently of grievous consequence to patient and physician. Watchfulness and a certain amount of skepticism in a case of neurasthenia is often rewarded by discovering some curable disease long disguised by neurotic symptoms to the decided benefit of the patient.

The medical literature is replete with reports of malnutrition, autointoxication, toxemia, early and latent pulmonary tuberculosis, atypical syphilis, arteriosclerosis, uremia and albuminuric retinitis, which at first had been an apparent neurasthenia. Diabetes, mild exophthalmic goiter, brain tumor, multiple sclerosis, alcoholism and incipient general paresis have been inaccurately and erroneously diagnosed as neurasthenia. This is offered as evidence to support the view that neurasthenia is a more or less physical disorder due to some cause extraneous to the nervous system, and masking an unsuspected organic lesion which, if not already present, may reveal its existence a little later.

It is generally admitted by internists that one of the conditions most difficult to diagnose is very early pulmonary tuberculosis. At this stage of the disease there are little or no obvious lung find-

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ings. It betrays itself, however, as Pottinger points out, as a toxemia having as symptoms malaise, lack of endurance, loss of strength, nervous irritability, loss of appetite, digestive disturbance, loss of weight and anemia. These symptoms are characteristic of neurasthenia and unless one is guarded in diagnosis, a curable condition soon lapses into a hopeless one with the resultant tragedy. Head contributes a number of detailed cases of concealed tuberculosis diagnosed as neurasthenia, and deduced that almost all cases of the neurosis are latent tuberculosis.

If 90 per cent. of the so-called neurasthenics give a reaction to tuberculin, and if patients exhibiting symptoms of the neurosis, but without apparent trace of tuberculosis later develop this pulmonary affection, then the symptoms of neurasthenia should be held to stricter accountability, and systematic temperature readings or tuberculin tests should be carried out in cases under suspicion. It is stated that the symptom complex of neurasthenia, plus slight elevation of temperature on exertion, plus rapid pulse, means pulmonary tuberculosis.

That protean disease called syphilis is often masked by symptoms resembling neurasthenia. In fact, the results of the Wassermann reaction have been more than once the source of astonishment and chagrin to the practitioner who unwarily diagnosed cases as neurasthenia. Krebs, Thomas and Ball give percentages showing the relationship between syphilis and neurasthenic symptoms. General paresis, that dread syphilitic disease, very commonly opens as a picture of neurasthenia. Joseph Collins says in this connection: "The early symptoms are those that are commonly spoken of as neurasthenia; namely, nervousness, pains in the different parts of the body, especially in the arms and legs, and change of outlook towards the world. In a great number of instances there is in the same patient insomnia, fatigue without attribution and mental irritability. In reality, therefore, it may truthfully be said that in half the cases of general paresis the patient's complaints at first are more or less indefinite, made up of symptoms considered subjective, and founded often in apprehension, which cause the family and, regrettably, the physician, to treat the condition lightly." He points out that early recognition of general paresis

is susceptible to treatment, and quotes cases to support his contention.

Calling a patient neurasthenic while overlooking a sluggish or noncontracting pupil to light, exaggerated reflexes, a history of change of character as related by his intimates, not only is a deserving humiliation to the physician so diagnosing, but also is allowing at large an insane person, an individual whose freedom constitutes a potential menace. In early tabes slight pains in the legs, somewhat disturbed gait, defections of vision, pupillary inaction, slight bladder derangements, and even a mild gastric crisis are often called neurasthenia at a stage when a great deal can be done.

In the recent activity of exploring the slightly known region of the endocrine secretions, writers have found that many of the ductless glands when disturbed give symptoms analogous to those found in neurasthenia. It has been observed that the neurasthenic conditions are due to an undersecretion of the suprarenals, the insufficiency bringing about low blood pressure and poor circulation, a frequent symptom in the neuropath.

Tom Williams claims that disthyroidea, as well as other glandular irregularities, is responsible for disorders labeled neurasthenia, and Reeder says that in patients with neurasthenia a close examination of the neck will disclose in more than 50 per cent. dysfunctionating thyroid. In thyrosis, fatigability of the individual is greatly increased and other neurasthenic symptoms supervene, and most patients with thyrotoxicosis exhibit constantly many of the stigmata of neurasthenia.

Enteroptosis and other visceral displacements, lacerated perineum, torn cervix, procidentia uteri, and other abdominal and pelvic disturbances are frequently contributory causes to neurasthenia. We see these patients every day going from one physician to another, infesting the dispensaries, without relief until some wise physician sifts the matter to the bottom and applies the necessary treatment.

Just how much harm prevention of conception in the form of coitus interruptus really does is hard to estimate, but there is no question that the habitual "withdrawal" on the part of the male and lack of sexual gratification in the female is a fruitful source in the creation of the neurasthenic.

I think that in most cases of neurasthenia, especially in married patients, the sexual relationship should be gone into. Discreet questioning along this line will often elicit important etiologic factors. The sexual neurasthenic, so-called, has long been the despair of the general practitioner. No form of neurosis, perhaps, is so mishandled as is the sexual neurotic, all because so little had been done towards finding a possible organic basis for the trouble. Now the enterprising genito-urinary specialist finds that sexual neurasthenia is a definite condition of the genito-urinary tract in the form of an inflammation of the verumontanum and a few applications of silver nitrate to that part is a long way towards a cure.

Dental diseases, painless or otherwise, have been reported as being a factor in producing neurasthenia and appropriate treatment brought relief. Gastric atony, lead poisoning, carcinoma of the stomach, defective vision, diseases of the nose and other organic diseases have been variously and perhaps justly implicated as the cause of neurasthenia, and so on *ad infinitum*.

All the foregoing is purposive in pointing this moral: That the diagnostician should not take anything for granted in the presence of neurasthenic symptoms and that the term neurasthenia is one to be used with caution and a great deal of reservation, if at all. A physician making an indiscriminate use of the term, and if it is the liveliest part of his diagnostic repertoire, to cover a multitude of disorders he does not recognize, he is remiss in the responsibilities he owes his patient, betraying his unskillfulness and lack of the right kind of medical experience. Keener observation, clinical circumspection, carefulness, more belief in the benefits of the laboratory, and above all a thoroughly searching history of each patient will soon do away with the misuse of the term neurasthenia.

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MENIERE'S DISEASE.*

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One can readily understand why Meniere, in 1861, believed that he was dealing with an entity when he associated vertigo, nausea, vomiting and absolute deafness with the condition where the post-mortem examination showed hemorrhage or bloody extravasates into the semi-circular canals and vestibule.

Flourens, in 1824-25, had made sectioning of the semi-circular canals and observed and noted the effect, but Goltz had not yet voiced the idea that they were the organs of equilibration, but why writers of today should continue to consider symptoms complex as a pathological entity one is at a loss to understand, for be it understood that it is around a single post-mortem reported in 1861, where neither the cause of deafness nor death itself was disclosed, that all the literature of Meniere's disease has been built up. He has given us a description of the first case observed clinically coming to autopsy:

The patient, a young girl, who in consequence of a cold at the time of her catamenia, suddenly became deaf with symptoms of severe dizziness and vomiting and died on the fifth day of the disease. The autopsy revealed an unaltered state of the brain and spinal cord, but showed that the semi-circular canals were filled with a reddish plastic exudate, which extended partially into the vestibule and that the cochlea was in a normal state. The cause of death was not explained by conditions found at the post-mortem examination, nor was the cause of deafness explained, as the cochlea was normal and the brain free from disease.

Politzer's case was that of a woman 56 years old who fourteen years previously suddenly became deaf, with temporary unconsciousness and with symptoms of the apoplectic form of Meniere's disease. The post-mortem examination showed a bony growth on the external labyrinthine wall, the origin of which was probably due to an inflammation of the lining membrane at that place. Among the cases of hemorrhage in the labyrinth reported in literature there is

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no other case according to the author's knowledge of the apoplectic form of deafness in an individual in whom the ears were previously normal. (Politzer.) Shortly after the publication of the work of my father on the "Lesions of the Internal Ear, Causing Symptoms of Apoplectiform Cerebral Congestion," (*Gazette Medicale*, 1861), the attention of otologists was attracted by facts of the same nature that they had had occasion to observe.

Many years passed and it was Duplay who (the first in France) proposed calling this labyrinth affection "Meniere's Disease," in order to honor the former chief physician of the Deaf Mutes of Paris, who had first described the group of vertiginous phenomena due to a lesion of the internal ear.

Since that epoch research has continued, observations have multiplied, and many authors have wished to include under the name of Meniere's disease all equilibrium, vomiting and deafness.

The result is a regrettable confusion which will not cease until new facts proved by autopsy will have cleared up this point in pathology.

In studying the functional troubles I have given a description of the syndrome of Meniere. This syndrome, whether complete or incomplete, may be in connection with functional troubles, or may be due to a lesion of the internal ear. But on the other hand the functional troubles may be direct or come from a cerebral cause. Thus is explained the frequency of the syndrome as well as its special character.

One must not, therefore, confound Meniere's syndrome, which is found in a great number of aural affections, with Meniere's disease, characterized anatomically by a primary or secondary lesion of the labyrinth, and clinically by the syndrome previously described.

Pathological Anatomy—The autopsy of the case cited by my father showed an exudation of blood in the semi-circular canals and also the absolute integrity of the cochlea. Politzer reported a case with fracture of the petrous bone with fissures; he found an effusion of blood in the entire labyrinth. During life, the subject had presented all the symptoms of Meniere's disease. Voltolini has reported a case of this nature. Autopsies are rare and the pathological-anatomical lesions are not yet well defined.

Relative to the seat of the affection, one must, as pointed out by Duplay, analyze the different symptoms of Meniere's disease with physiological experiments as a basis. This part of the question has already been treated in the study of vertigo (Flourens, de Golz, etc.).

Etiology—Meniere's disease is primary or secondary. When it is primary or idiopathic it attacks people in good health, even when they have never had aural trouble. The determining causes are a sudden chilling, or on the contrary, sunstroke, of which I have seen two cases.

When the disease is secondary, it is due to the extension to the labyrinth of middle ear disease, syphilis, leucocythemia, traumatism.

Symptomatology—I transcribe here the second paragraph of my father's paper:

A young and robust man, suddenly and without apparent cause, experienced vertigo, nausea and vomiting; a state of inexpressible anguish sapped his strength; his pale and perspiring face announced the near approach of syncope. Often the patient, feeling himself stagger and stunned, falls to the ground without the power to arise. Lying on his back he could not open his eyes without seeing all surrounding objects whirling about; the slightest movement of his head added to his vertigo and his nausea. These accidents had no connection with the state of fullness or emptiness of his stomach; they occurred in the most perfect health; they lasted only a short time; but were of such a character that the physicians summoned believed them due to a cerebral congestion and prescribed accordingly.

But the observing patient was not long in discovering certain phenomena, such as noises in the ears, sometimes very loud, very persistent, and then the hearing became notably weakened on one side, sometimes even in both ears.

By careful, precise questioning of some patients, I have been able to establish that the vertigo, syncope, sudden fall and vomiting had been preceded by noises in the ears, that these noises were apparently without cause, that they persisted in the intervals between attacks, but that they often coincided with the increase of deafness. I believed myself sufficiently authorized to see in these grave phenomena only the symptomatic expression of a lesion of the special apparatus, fully compatible with the preservation of the general health, and in fact, many of these patients after having been a prey to crises of this nature for months and years, have seen them gradually disappear.

Then became evident another order of symptoms: the noises continued with remarkable persistency, the hearing decreased gradually and I have noticed its complete abolition in cases where the ear had never been the seat of pain.

This vertiginous crisis is rarely single. It may be repeated after several days, months or even years. The deafness may be complete or incomplete, and, in the latter case is always quite marked. When the disease is idiopathic, objective examination is absolutely negative. The cranial perception of the diapason is nil or much weakened. Low pitched sounds are perceived better than high ones.

At the Congress of Amsterdam, Guye called attention to a point of interest, "the trembling writing" of sufferers from Meniere's disease, and presented several curious specimens.

Progress and Duration—The progress depends on the intensity of the lesions. The crises are separated by intervals without fixed limits; they may be repeated after several months and even after several years.

The phenomena which disappear the more rapidly, in comparison with the others, are the tendency to

syncope, the nausea and vomiting. But the vertigo continues more or less severe during a very long time, and the patient cannot preserve complete equilibrium. He presents a special typical walk. The recrudescence of the noises is often very pronounced at the very moment that the crisis appears. In his lessons Charcot has insisted strongly on this point.

The deafness varies in intensity; but in certain cases, while being severe, is far from being so pronounced as is claimed. Nevertheless, all varieties are observed in this disease, and each case shows different manifestations.

Termination—When Meniere's disease attacks a person in good health without preceding diatheses, the life of the patient is not usually in danger. The vertigo and the noises may cease after the loss of the hearing. It is not rare, however, to note the persistence of these two symptoms after the loss of this function.

Diagnosis—To differentiate an attack of Meniere's disease from an apoplectic form congestion is easy, because in the latter there exist phenomena of paralysis and a loss of consciousness which are absent in Meniere's. A vertiginous crisis may be caused by a simple obstruction of the tube reacting on the middle ear. At first diagnosis may present some difficulties. The cases of Burkner and of Blau are well known. I have seen two similar cases. I append the most characteristic:

Man; aged 26 years; hotel servant. Two months previously had been seized with vertigo and noises in the ears, vomiting, syncope and falling. These crises took place several times a day; then remissions of eight or ten days. The house physician treated him for a month with quinine. When he came to consult me, I admit that I was at first inclined to diagnose a case of primary Meniere's disease. Examination with a speculum disclosed nothing; but the left tube was closed. I reserved my diagnosis. In fact, after a month's treatment with bougies, the attacks disappeared and the patient remained free from them. In all cases it is necessary to make a complete aural examination.

It is not always easy to establish the difference between true Meniere's disease and the precursor syndrome. The elements of the diagnosis are found not in the syndrome itself, but in the circumstances which accompany it. (Disease of the middle ear, petrous bone, etc.)

Prognosis—The prognosis is always grave. However, idiopathic Meniere's disease may be cured, the hearing remaining fairly good. I have seen some very well defined cases. If deafness is complete, no hope of improvement may be entertained.—*E. M. Meniere: Meniere's Disease, Manual D'Otologie Clinique, 1895.*

Keresion says:

This term may be properly applied only to the condition in which pronounced deafness and the phenomena of vestibular irritation occur suddenly as a

result of hemorrhage into the labyrinth. In its true form it is unquestionably one of the rarest of lesions. As a pathological entity it must be remembered that many conditions which we now know to be capable of inducing identically the same clinical phenomena were practically unrecognized until a comparatively recent date.

He also says: "The disease is still more or less wrapped in mystery."

We know that affections of the middle ear or Eustachian tube will at times induce symptoms complex, which have been grouped under the name of Meniere's disease. I well recall one such case which came under my observation some eighteen years ago where there had been two attacks of syncope, vertigo, tinnitus, vomiting and temporary deafness, in which the diagnosis of Meniere's disease was made by a specialist above the average in ability, and yet under proper treatment directed to the auditory apparatus, Eustachian tube, and gastro-intestinal tract, made a complete recovery and has remained so through all these years. Deafness, due to leukemia, syphilis, anemia, lagrippe, and diseases of the central nervous system may all give rise to symptoms as complex as those reported in Meniere's cases. Besides many cases have been reported when bloody exudates were found in which no Meniere's symptoms were noticed during life.

In Meniere's case the profound deafness is unaccounted for, as the cochlea was in a normal condition and the brain was void of pathology. Nor was the cause of death developed. The unknown conditions in this case leave too much for speculation to base a pathology upon. How many of you, with years of experience behind you, have witnessed a death of a young woman on the fifth day following a cold at the time of her catamenia with or without any of the symptoms recorded? This of itself points to a very unusual condition, one which should have challenged the attention of the investigator, and the cause of death if possible ascertained. I regret that I cannot give you the exact report of this case, but the files of the Crerar Library are defective. I take it that the report of Politzer and others examined are accurate.

We often meet cases in which we have manifestations which, from accepted text books' teachings, could be classed as cases of Meniere's disease; a diagnosis, which to an intelligent man causes more or less concern for his future well-

being, and for that reason I would urge more care in the consideration of these cases.

We have seen that we may have a hemorrhage within the labyrinth as shown by post-mortem without one of the symptoms of Meniere's disease, and upon the other hand we may have other cases with Meniere's symptoms clearly due to other causes than hemorrhage into the labyrinth, diseases of the central nervous system, auto-intoxication, due to gastro-intestinal disorders, toxemias, due to specific infections, inherited or acquired, besides many other conditions.

This paper was suggested by the following case: Mr. I., aged 65 years, in August, 1910, set out of doors without anything on his head for an hour. That night he had a sore throat; took four grains of quinine; the next morning had a ringing in his ears, right the worst, which continued. After a month he went to an aurist, who blew out his ears, and treated them twice a day, every other day, for four or five days without apparent benefit. The following May, 1911, the ringing stopped. In the fall he caught a severe cold and his ears began to ring again and they have kept it up ever since. Up to last April, 1915, his health was good, when he came down with lagrippe. Since then the right ear has felt more or less bunged up, at times causing him a little pain. He had vertigo first in 1911, due, he thought, to indigestion, which caused vomiting. In 1912 he had two attacks, due to over exertion; one or two more up to last April, 1915. Since that time he has had occasional attacks, perhaps six, of mild vertigo. The first attack came on while crossing the street, after an animated conversation with a friend. He managed to get to a seat, was helped home, and after a cup or two of warm water vomited and got relief. About half of the paroxysms have been attended with vomiting. Hearing in left ear is good; right not so good. He can hear a watch two inches away. His septum is deflected to the right and in contact with the lateral wall; hypertrophy of the anterior part of each middle turbinate; hypertrophy of left inferior turbinate spur on left side of septum, with chronic sinusitis; catarrhal condition of both tympanum cavities; right Eustachian tube more occluded. Right, watch 2 inches, R.B.O. A 11 — with C 1 — C 2 not heard. All others heard. Left, watch 2 inches, L.B. 12 — A 31 C 2. All forks heard. I expected to have made a more complete examination of this patient, but did not have the opportunity, as he was seen in consultation. A Wassermann showed a + 4 in addition to catarrhal conditions noted. A diagnosis of Meniere's disease had been made.

We know that deafness only too frequently follows any kind of syphilitic infection. We also know we have disturbances of equilibrium,

nausea, vomiting and noises without deafness. Any of these symptoms should always suggest the possibility of syphilis. Yet, as before stated, any of the infectious diseases, or functional disturbances, may give rise to more or less Meniere's symptoms, which are to be associated with vestibule irritation, regardless of underlying pathology. It is a symptomatic diagnosis due to many etiological factors, and of itself does not furnish a rational therapeutic guide.

I have selected three cases, types of non-suppurative labyrinthine disturbance, only one of which had symptoms at all comparable with the cases cited eighteen years ago, which terminated so favorably. Yet these cases, together with others of their class, who have come under my observation, were doomed from the first accession of the disease to absolute deafness so far as the ears involved were concerned.

In 1902, a woman, aged 32 years, came to my clinic whose history previous to a date of eighteen months before coming under my observation was in good health, and hearing good. On a Sunday evening she had entertained some lady friends at her home, when she took her first and only glass of wine, to which she attributed all her subsequent ills. After their departure she retired, when she thought of an article on her bureau which she desired. She arose and made a step toward the bureau, when she was seized with an attack of vertigo, syncope, and fell to the floor, but did not vomit. With the return of consciousness she was able to get into her bed and slept soundly until morning. She did not feel well, but got up and attended to her duties, but was totally deaf in both ears. She was under my observation at irregular intervals for about a year, in which times there was a progressive mental deterioration. She was put under mixed treatment, not from any other evidence of leucic infection other than the loss of patella reflex, a staggering gate, and other manifestations of ataxia. There was no history of infection or evidence of inherited trouble present. She was still alive in 1907 and her mental condition, I was told, had markedly deteriorated.

I regret I do not know her whereabouts, if alive. I did not, nor did anyone who saw her with me, make a positive diagnosis. Her gate was the staggering gate of a cerebellum disease and without focal symptoms. Her gate had improved somewhat while under observation, yet the mental deterioration was steady and co-ordination lost as soon as eyes were closed.

Oct. 6, 1913, Miss S., aged 26 years. Mother died at the age of 54 of paralysis; father died at the age of 53, supposed assault, as his body was found in the river. There were four children; one died at the age of 25; cause of death, just faded away, having never menstruated; probably tubercular. The other

two look healthy. This patient when nine years of age was nearly blind; interstitial keratitis, for three years. Had her tonsils removed when a little girl, and work done in her nose. Right inferior turbinate removed twelve years ago. Had a suppuration of right ear seven or eight years ago; was treated for a short time, thinks a month, and got well and it has not given her any trouble since. She has had catarrh severely all her life. Until Saturday her left ear was her best ear, the right never was good. While in a department store, where she had gone to make some purchases, she had a buzzing sensation in her left ear. She had three attacks of this kind that day, the last being about 9:00 p. m. She was not unconscious at any time, but felt confused and frustrated; had no vertigo or nausea, but noticed that she could not hear well since. Never had any dizzy spells in her life except a long time ago. Right, watch P.C. B. 5 A. 8 C. 2 and all forks heard. Left, watch O. B.O. A.O. Calorie test, no reaction. She had diseased tonsils which had been cut off, adenoid, synechia on the left between septum and inferior turbinate; right atrophic with a chronic suppurating sinusitis; septum deflected to the left. Condition of hearing today practically the same as at the time of first examination, except there is loss of bone conduction and in spite of putting her throat and nose in good condition, during the winter she has had an acute infection of the sinus again. The patella reflex is normal.

Case 3, April 30, 1915. A female child, aged 10 years, was brought to me on account of sore eyes—interstitial keratitis. Two years before coming under observation she had mumps, and about two months afterwards it was noticed she was deaf in the left ear and has been so ever since. The father gives a specific history and this child and others of the family show the inherited taint. She has chronic sinusitis; tonsils and adenoid have been removed; patella reflex lost; she feels dizzy at times. Right E — B. 5 A B. Left E — B. O. A.O., no reaction to calorie test in left ear. Today the hearing in the right ear is about the same in spite of most approved specific medication and treatment to ear condition. The left is as when first examined.

The first case of the patient 32 years of age, I think, was due to hemorrhage, but whether into each labyrinth as in Meniere's case or central I am not settled, but think it of specific origin. Although specific medication did no perceptible good, the absence of patella reflex, and loss of co-ordination when eyes were closed, her gait was not that of locomotor ataxia.

The second case was, I think, due to hemorrhage into the cochlea, since there was no disturbance of equilibrium and due to a specific inheritance.

The third looks to me more like an 8th nerve deafness, due to mumps, which my records show to be quite a common cause of unilateral deafness of labyrinthine origin.

I embodied the report of E. M. Meniere, taken from his Manuel D'Otologie Clinic, published in

1895, to show how erroneous his concept of the disease named for his illustrious father, when he places a case reported by Politzer due to trauma, showing the Meniere's syndrome as a case of Meniere's disease; also case reported by Politzer where there was loss of consciousness, which Meniere says is not a part of his disease. Also the case he cites as Meniere's syndrome due to Eustachian obstruction, which is almost a parallel case to the one I observed some years ago.

31 N. State St.

ADVANTAGES OF SCIENTIFIC FEEDING IN CERTAIN NERVOUS STATES.*

ALBERT R. SATTERLEE, M. D.

DANVILLE, ILL.

I have chosen the subject of scientific feeding because I believe it is a subject that is deserving of careful study; and though I have little that is original to present, I feel sure that we shall be benefited by its discussion. Perhaps the reason we have not accomplished more in this line of investigation is because it is so vast a subject and requires much time, patience and expense to obtain scientific facts that will be of benefit to us in our medical practice.

More than ten years ago Walter B. Cannon of Harvard in studying the physiology of the activity of the stomach opened up new facts which have shed much light upon conditions controlling stomach activity. He mixed bismuth with his food preparations and had for his subject cats whose digestion could be observed by means of the x-ray. From this series of experiments he learned that the presence of a certain quantity of free acid in the stomach was the signal for the opening of the pyloric orifice and that the presence of a certain amount of acid in the bowel which is ordinarily alkaline is the signal for the closure of this orifice. This was a great help in determining why some individuals retain the contents of the stomach much longer than others. It also explains why some foods are discharged much more quickly than others. He could understand why the irritated stomach would discharge its contents under some circumstances before they were prepared for removal from the stomach. To a certain extent it treats its contents as it would a foreign substance. On the

*Read before the Vermilion County Medical Society, March 13, 1916.

contrary, when the stomach is low in hydrochloric acid it will retain its contents often for three days or more. Many individuals eat too fast and the irritation of the stomach caused by improper mastication produces acid formation greatly in excess of the needs of the stomach. This excess of acid frequently produces ulcers in the stomach and in the bowel mucous degeneration with constipation and other ailments.

Ivan Petrovitch Pawlow commenced his investigations in about 1890 and his work in the Institute for experimental medicine has been productive of great advancement. In the Military Academy of Medicine at Petrograd he received the Nobel Prize about 11 years ago. His conclusions reached by experiments upon dogs with various fistulae were these: that the secretion of gastric juice during the first half of digestion is entirely regulated by the sense of taste and the keenness of the appetite. This would connect the digestive functions of the stomach with that of the mouth very intimately. He prepared his dogs with various surgical contrivances to study the process of digestion. Upon one dog he closed off the esophagus and established a fistula that he might observe the reflex effect of eating when the food did not reach the stomach. Under such conditions the dog would eat ravenously for hours without being satisfied. On the contrary, when he would place the food into the stomach when the dog was asleep by way of the stomach fistula, it would lie there for hours without any apparent digestion. Milk and certain meat juices seemed to be an exception to this rule. Dr. W. S. Sadler states of Pawlow's experiments, that the thought of food or the desire to eat would excite an abundant supply of gastric juice in about four and a half minutes. This juice Pawlow calls appetite juice. It was found only during the first half of the digestive period. The quantity of this juice may be great or small, according as the appetite is good or poor. It differed very materially from the characteristics of the so-called chemical juice. The appetite juice has a standard chemical formula and digestive power. It has the same per cent. of hydrochloric acid. On the contrary, the chemical juice varies constantly according to the nature of the food and the action of the appetite juice. Milk would call forth a mild form of chemical juice and meat and bread would call

forth a stronger juice. The conclusions were that appetite equals juice.¹ "Good appetite equals good digestion. Milk produces weak juice, meat a stronger juice and bread produces a juice about three times as strong as the others. Fear, fright, worry and disappointment caused an almost instant suspension of the stomach secretions." Pawlow's work is done and much credit is due him for his contribution to science. Whatever deductions we may make from these experiments no doubt the principle in the main holds good. It is possible, however, that in dogs with a long developed carnivorous appetite, with limited judgment and a keen sense of smell and taste, that these propensities might cause them to vary somewhat from the experience of the human being.

It is of comparatively recent date that Horace Fletcher and others associated with him have encouraged further investigations. Prof. Chittenden and Prof. Fisher of Yale have been led to enter into the scientific aspects of the feeding question and while some criticism has been made of extravagant statements, I believe we may learn much from their investigations. Prof. Fisher states that if we give conscious attention to thorough mastication of the first three mouthfuls of food we can rely upon the power of habit to finish the meal without giving further special attention. Fletcher calls attention to the regular and systematic process of mastication as observed in the lower animals. His conclusions are briefly these: That the food which enters the mouth at one time is divided into two parcels. These morsels travel backward upon the teeth onto the grinders and by the motions of the jaw and the assistance of the tongue and the buccinator muscles are constantly restored to the teeth. The mouth is divided into two parts quite dissimilar in construction and utility. The fauces separate the two parts like curtains, the anterior from the posterior apartment. The food having traveled to the second apartment is returned upon the tongue to the anterior portion of the mouth by the backward and forward motion of the tongue. Thus the bolus of food moves in a set of double semi-circular movements, traveling back upon the double set of teeth and forward upon the tongue until maceration and insalivation are complete. Then without conscious effort the food

1. William Sadler: Science of Living.

in a liquid state slips away between the curtains and swallows itself. This act being an unconscious and a reflex act. It will be readily seen that not all of a mouthful of food will be swallowed at one time. Some parts are more resistant and require further treatment. Comparing this process with the conduct of the stomach under normal activity, a resemblance is observed between the two. Undoubtedly the mouth is a more important organ of digestion than has been generally recognized.

Fisher states that we require for the proper action of the bowel from one ounce to an ounce and a half of cellulose each 24 hours. This, of course, cannot be liquified and must be received in a somewhat different manner.

Regarding the daily ration and the total calories that should be taken in 24 hours there is, of course, some difference of opinion. Careful experiments reveal that the individual often takes two or three times as much protein as the body can properly utilize. Meat proteins are decidedly stimulating to the nervous system. If this food is taken in excess of the body requirements and the sympathetic nervous system is weak and exercising poor control over digestion and elimination, especially of the uric acid output, we can see trouble arising. Fletcher, who is an advocate of the low protein diet, states that he is able to do the work of an athlete upon 60 grams of protein in 24 hours. Prof. Chittenden goes still lower and places his ration at 55 grams per day. The total caloric intake of these men is about 1,500 or 1,600 calories daily. If we give due consideration to the special needs of the neurotic patient, the weakened nerve control, the already disturbed digestion, the faulty elimination, I am sure the standards set by our eastern co-laborers will not be far from correct.

A man weighing in normal health about 165 pounds supports about 19.3 square feet of skin surface. He should take in mild weather about 2,200 calories of food. Dividing this by the Yale standard we have the 2,200 calories divided as follows: Proteins, 10 per cent. or 220; fats, 30 per cent. or 660; carbohydrates, 60 per cent. or 1,320 calories. Gautier, a French authority, places the division as follows: proteins, 10 per cent. or 220; fats, 35 per cent. or 770 calories; carbohydrates, 55 per cent. or 1,210 calories. It may be necessary for a man working at hard

labor to take 10 to 25 per cent. more food than this estimate. The temperature will also influence the absolute requirements. It is well for the individual that the stomach acts to quite a degree independent of our assistance, but in some cases it is necessary to give care to the functions of the body, realizing that in many cases the natural instincts and desires are not a safe guide for action.

I present below a sample bill of fare not to stimulate the gustatory functions of the epicure, but to simplify the problem which appears to one unaccustomed to figuring food values quite complex. I have selected a variety of simple foods and figured the food elements of these preparations. In the cereal or coffee the estimate includes milk and sugar. In the corn bread and the butter and the pie I have taken the usual quantities of food dispensed at a serving. The slices of bread are the ordinary size and thickness. Figures do not come out mathematically exact as you will note. I have placed the correct amount that you may see how nearly it approximates the correct standard. The "oz." and "est. cal." are not accurate but grossly estimated.

BALANCED BILL OF FARE

Food	Portion	Oz.	Cal.	Prot.	Fats	Carbo.	Tot.
Est.							
Breakfast—							
Orange, 1 large....	5	100	4.5	2.5	67.5	74.5	
Crm. toast 1 slice..	3	100	14.1	106.8	63.6	184.5	
Bread 2 slices.....	2	200	18.6	7.4	126.8	152.8	
Butter 1 square...1-2	100	.6	113.3	....	113.9		
Cereal 1 cup.....	4	100	2.4	32.8	39.6	74.8	
				40.2	262.8	297.5	600.5
Dinner—							
Baked potatoes....	2	200	27.2	4.0	231.2	262.4	
Brown gravy 2 serv.	50	9.3	27.3	23.4	60.0		
Poached eggs.....	1	100	52.6	83.8	...	136.4	
Corn bread 2 sqs..	200	28.3	41.	173.4	242.7		
Butter 1 square...1	100	.6	113.3	....	113.9		
Custard pie.....	3	100	14.7	50.4	91.5	156.6	
				132.7	319.8	519.5	972.0
Supper—							
Fresh pears, 1 large	100	21.5	6.5	82.5	92.5		
Corn flakes, 2 serv.	200	21.6	2.8	182.6	207.		
Cream 1-2 glass....	100	5.8	98.6	10.6	115.		
Graham bread, 1 sl.	100	10.4	4.8	60.8	76.		
Butter 1-2 squares..	50	.3	56.6	...	56.9		
Milk, small glass..	100	15.2	44.	23.2	82.4		
				56.8	213.3	359.7	629.8
Total for 24 hours....		229.7	795.9	1176.7	2202.3		
2-20 7-20 11-20.....		220.23	770.77	1211.21	2202.21		

The neurotic individual, while not such an extreme case of perverted habits, requires careful supervision of the feeding habit. We find the whole nervous system is often out of adjust-

ment. In extreme cases we have both a neurosis and a psychosis to deal with. We find every function abnormal and we may safely assume that every gland of the body is in an abnormal state. She cries when there is no special call for tears. She boils over with sentiment when there is no reason for such conduct. She lies awake when she should be asleep. The physical functions are quite as variable as the mental. She has an unreliable appetite. The bowels are irregular and often constipated. Menstruation is usually profuse and often too frequent. The reflexes are exaggerated. There is lack of muscle control which is observed in the ocular reflexes. There is incoordination but no ataxia. A decided lack of confidence is the rule.

I have found that the neurotic patient needs abundant food of the right kind. I believe that we should feed generously and forced feeding according to the Weir Mitchell system has many advocates. Many do better with limited exercise and hearty feeding. Fats especially should be increased. In many cases the food will need to be of a simple sort and may consist largely of milk. The aim must be in dealing with this class to increase nutrition and limit the expenditure of nerve energy. We should limit the expenditure of energy both physical and mental.

The neurasthenic patient is representative of a class which frequently presents many difficulties in nutrition as well as elimination. There is frequently observed an excess of calcium phosphate and calcium carbonates in the urine of the neurasthenic. We should feed them with such foods as will contain abundant lime constituents. Tibbles states that milk is valuable for this class of patients, because of its richness in lime and lipoids. The whole wheat foods are valuable for their content of lime. Germ bread and whole meal bread are more stimulating and promote greater cellular activity. Lecithin is an important element in nerve tissues. We cannot, however, always rely upon foods containing lecithin. Yolks of eggs, brains of sheep and similar foods are considered valuable, but the lecithin may be decomposed in the bowel and produce toxic symptoms. I believe that the yolks of eggs boiled hard or otherwise is a valuable resource for lecithin. Eggs contain, according to Bertrand of

Paris, arsenic varying from .0005 to .005 milligrams in each egg. This would seem to be a valuable food, both for anemia and nerve degeneration. "It has been demonstrated that it is very difficult for the nerve tissues to assimilate inorganic phosphorus, but lecithin and its compounds bring to the nerve cells highly phosphorized organic substances ready to be built up into the complex molecules of nuclein. Maize contains more lecithin than most other vegetable foods. Milk also contains lecithin. Tibbles suggests that lecithin is probably decomposed in the bowel into cholin, neurin and glycerophosphoric acid then resynthesized by the absorbing cells into lecithin. Peas, beans and carrots seem to be beneficial for the nervous individual.

The next nervous state that I wish to speak of is exophthalmic goiter. I am sure we have all been perplexed many times to know how to deal with some of the features of these cases. It is quite common to see a simple hypertrophy in young people, especially girls, and this is no doubt a protective rather than a pathologic process. But the individuals with weak nerves are often the ones that are afflicted and any slight enlargement gives the patient much apprehension.

Much yet remains to be learned regarding the function of the thyroid and of its behavior to the other related glands. Since the discovery of the internal secretions, hormones and cellular enzymes, the importance of these organs assumes its proper place. It has been observed by Eppinger, Ruddinger and Falta of Berlin that there is an interrelation between the thyroid and the pancreas and the adrenals. While in a late journal this position has been disputed, these investigators discovered that there is a mutual inhibition between the thyroid and the pancreas: that there is a mutual stimulation between the thyroid and the adrenals and that the extirpation of one gland leads to the hyper-functionation or hypo-functionation, according to the effect of the removed gland upon the one acting. For instance, removal of the pancreas results in hyperglycemia and glycosuria; hyperthyroidism and increased metabolism of proteins, fats and carbohydrates. The effect of the removal on the adrenals is excessive mobilization of the carbohydrates, the metabolism of the carbohydrates

being hindered by the loss of the internal secretion of the pancreas.

"The thyroid gland seems to influence carbohydrate metabolism through its influence over the pancreas, and protein metabolism is thought also to be controlled by the influence of the thyroid on the liver and calcium metabolism through the parathyroids."²

Tibbles states that oatmeal and liver stimulate the thyroid very strongly; that animal foods in general moderately stimulate and that milk, eggs, bread and butter only slightly stimulate this organ. This shows the line of action in controlling the dietary. Tea and coffee, owing to their effect upon the heart and sympathetic nervous system, should be used with the strictest moderation or not at all. Tobacco and alcoholic drinks should be forbidden.

Whatever diet seems to be indicated, rest in bed seems to be necessary. If it is a condition of moderate hyperactivity, the rest may not be absolute, but in severe cases rest should be enforced.

It has been suggested that it would be well to use the milk from thyroidectomized animals and Gobel says that such milk does not contain iodine, because the organ which excretes it has been removed. It may be necessary to restrict the use of foods containing much iodine. French peas, beans, beets, radishes and turnips contain from .14 to .32 milligrams of iodine per kgm., while potatoes, parsley and carrots contain none. Fish such as the cod, the oyster and salmon, from 1.2 to 1.4 of iodine per kgm.

I come now to a very interesting nervous condition, viz.: polyneuritis or beri-beri. There seems to be a similarity between the conditions of the nervous system in these last two diseases. The tachycardia, the tremors and the sympathetic disturbances in the last named disease, together with the fact of the relation of the thyroid with the other digestive organs seem to present a marked similarity. In the far eastern countries it has been found that the subjects of the disease known as beri-beri were restored if they were fed upon unpolished rice instead of the rice of commerce which has the pericarp removed. This fact has led to a study of the chemical elements which seem so absolutely necessary to the welfare of the body and especially the nervous system.

This chemical substance is named *vitamines*. A large amount of time and effort has been devoted to the study of this peculiar substance. I can only touch upon the subject briefly and give their conclusions as far as the experiments have been made conclusive.

Vitamines are chemical non-protein organic substances which may be easily destroyed by a certain amount of heat, which varies with each peculiar *vitamine*. *Vitamines* have different characteristics as they exist in different foods. Their chemical nature is not known but they are derivatives from nuclein and nucleic acids. Schaumann isolated from rice bran a certain substance which contains nitrogen, but no phosphorus, and he believes that these substances are *activators* or hormones which produce changes in the organic constituents of the nerves. The proportion in rice is very small. It exists in about 1 to 100,000 or about 1. gram 'per kgm.² "It is an organic base precipitated by phosphotungstic acid, silver nitrate and barium hydroxide. It has for its formula $C_{17}H_{20}N_2O_7$. It is soluble in water and acidulated alcohol and destroyed by a temperature of 120 degrees C. This refers to the *vitamine* found in beri-beri." Other *vitamines* are destroyed by a temperature of 110 and others will withstand boiling for an hour. Milk *vitamines* are necessary for growth and are destroyed by boiling and by the use of hydrogen peroxide as a preservative. They differ from the beri-beri *vitamine*. Andrews says that one-half of the mortality of Manila occurs in infants under one year; and half of the infants who die show signs of beri-beri. Manila infants fed by a healthy mother or with fresh cow's milk do not develop beri-beri. The disease is also cured by feeding the infants with fresh cow's milk or other substances containing *vitamines*. These facts are worthy of our thoughtful consideration. Groups of young rats were fed upon a basal diet of casein, fat and carbohydrates and salts. The rats soon ceased to grow. When a small quantity of fresh milk was given they grew normally. Prof. Leonard Hill says "Foods contain a number of *vitamines* and white bread does not contain them. In the milling process the outer layers of the wheat-berry are removed and the *vitamines* taken away."

2. William Tibbles: Dietetics or Food in Health and Disease.

1. Sadler, William: Science of Living.

There are some principles that apply to vegetables that I wish to mention in connection with the consideration of scurvy. This disease seems to be due to a deficiency of chemical elements and also to a lack of freshness of those foods, or a monotonous diet of dried meat or canned meat, vegetables and bread. It has been observed that there is nothing like fresh meat, onions and vegetables for curing it.² "It seems there is a common basis of dietetic error in the causation of scurvy, rickets, beri-beri and Barlow's disease."

Regarding the matter of the freshness of foods, Tibbles states that while vegetables and meat are fresh their salts are dissociated or ionized. These ions are important for metabolic purposes. Holst found that animals fed on rye, barley, oats or flour of wheat developed symptoms like human scurvy and die in a few weeks. The addition of fresh foods and especially vegetables, fresh potatoes, apples, carrots, dandelion leaves and lime juice would be protective. However, these latter foods lost their power to protect when they were dried, processed or autoclaved. Infantile scurvy is identical with scurvy and is due to the use of boiled, condensed or sterilized milk. Milk heated to 70 degrees C., the temperature for pasteurization, did not cause scurvy in guinea pigs. If it was heated to 98 degrees C. for ten minutes it lost its protecting power and the bones developed a high degree of fragility characteristic of scurvy. The scurvy vitamine could not be detected in a commercial sample of dried milk. The amount of this vital principle depends upon the amount in the cow's food.

I will make a few statements regarding foods which are considered staple foods and select two or three as types of others. Meat vitamine, as may be expected, is found more abundant in fresh meat than in any form of prepared meat. Its vitamins are destroyed at 120 degrees C. Meat roasts, in which internal temperature rarely reaches more than 60 degrees C., may escape the destructive process. Meat extracts which are quite generally discarded seem to retain the vitamins if prepared at a low temperature. Dried and canned meats are deficient as has been previously mentioned.

Regarding potatoes,² "Effront found a non-

protein nitrogenous substance which stimulated enzyme action and cell growth." Potatoes seem to be very useful for growing yeast and this is explained in the same manner. Potatoes seem to possess more of this substance when cooked with the skins on. Drying the potatoes destroyed the vitamins. But fresh potatoes contain a proportion of a non-protein nitrogenous substance possessing the power of activation. Cabbage loses its protective power at 120 degrees C., and cabbage juice was destroyed at 70 degrees C., or if kept for several months.

I wish in this connection to speak of the possibility of pellagra coming into this class of deficiency diseases. Pellagra seems to be a disease which has been complicated by many problems. Some hold to the corn feed theory. Yet some children have pellagra who have not eaten corn for two years. The disease seems to be a growing disease. It is spreading into territory where corn is not used to great excess. Some physicians find that corn ground with the whole meal coarsely is even curative. These facts seem to show that it is not simply corn meal or spoiled corn that produces pellagra. Neither does any system seem to clear all the uncertainties in this serious disease.

Evidence seems to be growing that at least foods deficient in vitamins enter into the etiology of this disease. Clinically we find that we have a close analogy between this disease and other deficiency diseases. We have not only extremely nervous but psychic symptoms in pellagra. Babcock thinks that the disease may be due to a monotonous diet of any sort, especially that used in charity institutions. In the dietetic treatment of this disease all that seems to be necessary is a well-balanced mixed diet, using the ordinary fresh foods. One or two theories may be worthy of mention in passing. It seems that some proteins, notably the zein of corn, are deficient in certain amidoacids. Three especially may be mentioned, viz.: glycocholl, lysin and tryptophane. This last element is important and is found in hemoglobin in serum albumin, serum globulin and edestin. The fact that when the pellagrin is fed with a mixed diet of meat proteins and other fresh foods he improves rapidly would seem to favor the deficiency theory.

During the year 1915 the U. S. Public Health

². Tibbles, William: Dietetics, or Food in Health and Disease.

Service secured the services of 12 criminals who were promised pardon on conditions that they would submit to the test of experimental pellagra. The test extended over a period from February 15 to November 1, 1915. The results were highly satisfactory and demonstrated that pellagra can be produced in a healthy individual. The diet which produced this disease was a one-sided diet consisting of a deficiency of proteins and an excess of carbohydrates. The abundant lipoids found in corn may play an important part. They seem to be intimately connected with cell absorption. It is thought that only substances dissolvable in lipoidal material is taken up by the cell. This point requires further demonstration.

In conclusion I wish to say that if we could have the human animal in a perfectly natural state with the nervous system perfectly balanced, we might trust to the factors of desire and personal need and individual capacity. The consumptive, as a rule, abhors fats of all kinds and yet it is my judgment as essential to increase largely the intake of fats in such cases as to have abundant fresh air. I believe we must employ scientific aids in the correction of the natural perversities of human nature. The stomach has been styled the abdominal brain and it will never come into perfect adjustment until the psychic control is regulated by natural customs, natural tastes and the effects of corrected habits.

Undoubtedly the use of prepared foods such as canned meats, canned vegetables and condensed milk have much to do with producing disturbances of nutrition. Then the modern milling process is, I believe, responsible for much of the deficiency diseases. Milk for children should come from animals fed with natural and health-producing foods. The pasteurization would seem to conserve the elements of growth and nutrition. The fireless cooker would, for similar reasons, be beneficial for prolonged cooking at a low temperature.

I believe our slogan should be "Back to Nature," in the matter of foods. Back to Nature in the use of fresh air and simple life and back to Nature in giving the body and mind at least 8 hours of rest each night.

NOTE.—Several indirect quotations and other data are gathered from Dietetics above referred to and acknowledgement is hereby rendered.

THE BACTERIOLOGY OF PNEUMONIA.*

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"Pneumonia," while generally understood to refer to the lobar form of the disease particularly designated as croupous pneumonia, is a vague term comprehending a number of quite dissimilar inflammatory conditions of the lungs. This being true, no single organism can be "specific" for all. Indeed, pneumonia must be conceived of as a group of diseases and the various micro-organisms associated with it must be separately considered in connection with the particular varieties of the disease in which they occur.

About ninety per cent. of all cases of lobar pneumonia are due to the pneumococcus, the remainder to the *Streptococcus pyogenes*, *Bacillus influenzae*, Friedländer's pneumo bacillus, and exceptionally to other bacteria, as *B. coli*, *B. typhosus*, *B. diphtheriae*, etc. However, certain observers contend that the pneumococcus is the *sole* cause of lobar pneumonia and that these other organisms have never been satisfactorily demonstrated to be other than secondary invaders. In the primary lobular type the pneumococcus is nearly always present and in a large proportion is found alone or associated with streptococci or staphylococci. The secondary cases of the lobular type may be caused by a variety of organisms,—*Streptococcus pyogenes*, *Staphylococcus pyogenes*, *Bacillus pneumoniae*, *B. influenzae*, *B. pestis*, *B. diphtheriae*, *B. typhosus*, *B. coli*, *B. tuberculosis*, usually associated with the pneumococcus, or by the pneumococcus alone.

Historical.—*Diplococcus* of pneumonia, pneumococcus, *Streptococcus pneumoniae*, *Micrococcus lanceolatus*, *diplococcus* of Fränkel and of Weichselbaum are synonyms for the bacterium which was almost simultaneously observed by Sternberg and Pasteur in 1880, in the blood of rabbits inoculated with human saliva. It is, however, to Telamon, Fränkel, and particularly to Weichselbaum, that we are indebted for the discovery of the relation which the micro-organism bears to pneumonia.

The identity of the pneumococcus as a separate entity has been questioned by Rosenow in his re-

*Read before the Englewood Branch, Chicago Medical Society, Feb. 1, 1916.

port that he has transmitted typical pneumococci into typical hemolytic streptococci. More recent work, however, to be considered later, points strongly to the permanence of the pneumococcus.

Morphology.—The form and arrangement of the pneumococcus varies with the culture media used. In the fibrinous exudates from the rusty sputum and in the blood of susceptible animals containing them the organisms occur in pairs, have a lanceolate shape with the pointed end as a rule turned outward, and a distinct capsule. When grown in fluid media longer or shorter chains are frequent, which are difficult to distinguish from certain streptococci except that the chains are usually shorter and the pairs are farther apart. In cultures the individual cells are oval or almost spherical in shape, and except in certain strains and in certain media such as milk, the capsule is less evident or altogether wanting.

The coccus measures about 1 micron in its longest diameter, is non-motile, has no flagella and forms no spores. It stains readily by the ordinary anilin colors and is not decolorized by Gram's. The capsule may be demonstrated in blood or sputum by Gram's or Welch's methods (glacial acetic acid), by the copper sulphate method of Hiss, or by Rosenow's new method.

Cultivation.—The organism, being more parasitic than many other bacteria, presents greater difficulties in its cultivation. On the ordinary media the growth is scanty and some strains do not grow at all; blood in some form is most useful. The presence of glucose or glycerin favors the growth, but the acid formed is injurious to their vitality. Blood agar, blood serum or nutrient agar streaked with human or rabbit's blood are good media. On rabbit blood agar the pneumococcus grows luxuriantly and forms in four to five days, thick green to black surface colonies, not unlike sun blisters on red paint, thus distinguished from the hemolyzing colonies of most streptococci.

To differentiate from streptococci, Hiss devised a medium of beef serum, 1 part, and distilled water, 2 parts, to which 1 per cent. inulin is added and enough litmus to render the medium a clear transparent blue. The pneumococcus ferments inulin, turning the litmus indicator red, and causes coagulation.

Isolation.—For isolation from mixed cultures or from material containing other species, such as

sputum, a reliable method is to make surface smears upon plates of glucose serum-agar. According to the number of bacteria present in the infected material, it may be smeared directly upon the plates or diluted with sterile salt solution before planting. Another method is to inoculate white mice and after their death to make smears on glucose-agar with the heart's blood.

Oxygen and Temperature Relations.—Aerobic and anaerobic conditions are equally favorable for the cultivation of pneumococci. Growth takes place most regularly at a temperature of 37.5° C., usually not at all below 25° C., not above 41° C.

Resistance.—In sputum the viability of the pneumococcus seems to far exceed that observed upon artificial media. Studies have shown that, slowly dried in sputum and protected from light, the organism may remain alive and virulent one to four months, or as long as nineteen days when exposed to diffuse light at room temperature. Wood's studies upon the organism in finely divided sputum,—in a condition, in other words, in which inhalation transmission would be possible—have shown that it survives for only about one and a half hours under ordinary conditions of light and temperature. Exposed to strong light, pneumococci die within an hour, often within a few minutes.

Low temperatures are well borne, a temperature slightly above zero being even conducive to the prolongation of life and virulence. The organism is destroyed in ten minutes by 52° C. and is highly sensitive to disinfectants, weak solutions quickly killing. Wadsworth concludes that in exudates the organism is most rapidly destroyed by 20 per cent. alcohol, other stronger disinfectants being less efficient, probably because of slighter powers of penetration.

PRODUCTS OF GROWTH.

Chemical.—The pneumococcus produces acids with ease from monosaccharides, disaccharides— as dextrin, glycogen, starch and inulin. Milk is acidified and coagulated; gelatin is not liquefied.

Toxins.—Our knowledge of pneumococcus poisons is still very imperfect. In culture media outside the animal body the production of an extracellular toxin does not occur. It is generally held that the results of a pneumococcus infection are due to an endotoxin:—by Neufeld and Dold and by Rosenow and others, that in the animal body, by the action of certain substances in the

serum, the bodies of the bacteria are partly digested and the digestion products of the proteins of the dead bacteria, or so-called split products, are poisonous. Cole, on the other hand, believes that by experiment he has shown that the toxin substance is contained within the bacterial cells and is set free whenever the bacterial structure is injured. In support of this, Jobling has lately ascertained by chemical analysis that no evidence of the splitting of the bacterial protein can be obtained after bacteria are allowed to undergo lysis in salt solution.

The above facts, however, according to Cole, do not exclude the possibility that the pneumococcus may produce an extracellular poison when growing within the body, and that to this poison pathological and functional changes are due. The greenish tint of the pneumococcus colony on blood agar and the similar, though less pronounced, change in the blood of animals severely ill and dying of acute pneumonic septicemia, and to a still less extent, in the blood of patients severely ill and dying of pneumonia, is evidently due to the transformation of oxyhemoglobin into methemoglobin. This led Cole to conjecture that this change might be due to the action of the intact pneumococcus cell.

From experimentation along this line, he advances the hypothesis that the formation of methemoglobin occurs in the neighborhood of living pneumococci because of a modification of oxidation and reduction processes in the medium immediately surrounding the bacterial cells; that the change must be a specific one in the case of the pneumococcus, otherwise all living microorganisms would cause this reaction.

PATHOGENESIS.

Types of Natural Infection.—The pneumococcus is not infrequently found in diseased conditions other than pneumonia; meningitis, pleuritis, peritonitis, pericarditis, acute abscesses, suppurative tonsillitis, conjunctivitis, otitis media and arthritis. The pneumococcus is present in the blood of practically all cases of lobar pneumonia. It was at one time supposed that the finding of the organisms in the blood was of ominous significance, but as a result of later researches this view is no longer tenable. The pneumococci present in the mouths of about 80 per cent. of healthy individuals are more likely to be atypical

than those found in pneumonia, and, judging from animal experiments, are, as a rule, less virulent.

Experimental Evidence of Pathogenesis.—If a small quantity of a pure culture of a virulent organism be introduced into a mouse, rabbit or guinea-pig, the animal dies in one or two days. Exactly the same result can be obtained by the introduction of a piece of lung tissue from croupous pneumonia, by the introduction of rusty sputum, and frequently by the introduction of human saliva. The disease in these animals is a bacteremia unassociated with conspicuous tissue changes.

To Lamar and Meltzer we owe the final proof that true pulmonary consolidation can be produced experimentally by cultures of the pneumococcus. By insufflating 5-6 cc. of a broth culture into the lungs of dogs they produced typical consolidation and lobar distribution in 42 successive cases. With streptococci the findings were of the lobular type.

Mechanism of Disease Production.—It is sometimes held that lobar pneumonia is caused by bacteria that are inhaled and make their way directly to the alveoli of the lungs, while lobular, on the other hand, is supposed to be due to the aspiration of bacteria that are present in the bronchial exudate, or it may arise from a general extension of a bronchitis into the alveoli. Meltzer offers the most satisfactory explanation of lobar pneumonia: That as a result of the exudation many bronchioles become occluded; the occlusion converts the lumina of those bronchioles with their alveoli into tiny cavities. In such cavities the pneumococci develop and produce irritating substances which in time bring about more or less inflammation of the lung tissues. His results justify the conception that pneumonia in man may not after all be from the start a matter purely and simply of the invasion of the lung by pneumococci, but rather that for such an invasion to be followed by the characteristic lesion of the disease there must first exist physiological conditions favorable to the massed or circumscribed development of the organisms.

IMMUNITY AND IMMUNIZATION.

An attack of pneumonia in man is probably followed by some increase in resisting power, but such acquired immunity is far from perma-

ment. One attack may succeed another after a short interval; in some cases predisposition to fresh attacks seems to be increased.

Many immunological studies have been made by various investigators, but the results for some reason have not been consistent. Much has been added to our knowledge by the work of Cole and his associates on the classification of pneumococci. These investigators have shown that while it is true that a large majority of lobar cases are due to pneumococci, so far as biologic reactions are concerned these cases are caused by at least four different types,—in other words, pneumococci isolated from cases of lobar pneumonia belong to one of four distinct types, each of which manifests specific immune reactions. It was found by protection experiments that the immunization of animals is strictly limited to the particular type of pneumococcus used in immunizing. They also found that agglutination reactions correspond with these protection reactions.

The first two groups are made up of organisms closely related immunologically to the others of their respective groups. Group 3 consists of *Pneumococcus* or *Streptococcus mucosus*. Whether or not differences exist between individual members of this group is not yet fully known. Group 4 embraces a number of distinct members which manifest all the cultural and common characteristics of pneumococci, but do not seem to be related to each other so far as can be demonstrated by specific biological reactions; this is known as the Heterogeneous Group.

The relative frequency of these types seems to be as follows: Group 1, 2, 4, 3, and as regards severity, 3, 2, 1, 4.

By inoculating horses with living cultures they have produced immune sera for types 1 and 2, which promise to be of value. The direct practical importance of these studies is very evident in prognosis and treatment. Unless the curative serum or vaccine employed in any case is homologous with the pneumococcus causing the infection it will have no therapeutic value; if, on the other hand, it is homologous, its therapeutic value may be very great.

BACTERIOLOGICAL DIAGNOSIS.

For the bacteriological diagnosis of pneumococci, four means are available:

1. The blood culture.

2. The lung puncture.

3. The inoculation of susceptible animals with the expectoration.

4. The cultivation of the organism from expectoration.

In addition to this, the work of Cole and his associates strongly suggests the advisability of classifying the pneumococcus according to type. This can be done in twenty-four hours.

DISSEMINATION.

Pneumonia is undoubtedly a transmissible disease. Exactly how infection takes place is not known, but in view of the fact that the infectious agent is in the respiratory tract, from which it is easily discharged into the atmosphere during coughing, etc., and the facility with which it can be inhaled by those near by, it seems justifiable to conclude that the primary entrance of the organism into the body is through the respiratory tract. Indirectly the infection is spread through drinking cups, thermometers, handkerchiefs, and other objects contaminated with the fresh discharges.

PROPHYLAXIS.

Sanitarians advocate that cases be isolated and made reportable; the discharges from the nose and throat burned or disinfected. There is no specific prophylaxis for pneumonia. Prevention consists in avoiding infection, maintaining the general health at a high level, thereby conserving the defensive mechanism of the body, care and cleanliness of the upper respiratory passages, avoidance of exposure, ill-ventilated rooms and dusty atmospheres.

As carriers doubtless play an important role in disseminating this infection, the education of the public concerning sanitary habits should be actively continued.

INDICATIONS FOR THE REMOVAL OF TONSILS.*

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The present pronounced tendency is toward conservatism in dealing with the tonsils. The literature emanating from specialists is more pronounced in this than that of the general practi-

*Read before the Englewood Branch, Chicago Medical Society, Jan. 4, 1916.

tioner who today is perhaps the most enthusiastic tonsillectomist.

A great deal has been written within the last few years regarding the function of the tonsil. It seems well established that the tonsil is not—as we consider, the appendix—a vestigial organ. Many feel that the tonsil has an important function in relation to immunity, and that the free cells passing through the epithelium are important in engaging ingested bacteria. Wright, Goodale and others have come to the conclusion that “bacteria attacking healthy tonsils do not permeate the epithelium.” The hypothesis offered is that the destruction is accomplished through a biochemical action, the epithelium throwing out an antagonistic ferment which overcomes the organism, and if the tone of the epithelium is normal there is, as Ballinger puts it, “an equilibrium between immunity and infection. When the cellular tonicity is impaired, the equilibrium between immunity and infection is lost and infection occurs.”

Before advising the removal of a tonsil we should remember: the definite relation of the tonsil to the voice and that in its removal we substitute a cavity whose base is a scar covered with non-mucus-secreting epithelium; the interference with the delicate neuro-muscular adjustments of the throat; and the marked changes in the lymphatic system, or in other words, that the removal of tonsils is a far more radical procedure and the conditions resulting therefrom are more important than those from many so-called major operations. However, we should also remember that the results obtained from the *proper* removal of *properly* selected cases are so brilliant that even the most conservative might be said to be enthusiastic, and that the work of Rosenau and others has condemned many a tonsil that might otherwise be hiding securely between the faucial pillars. We must, therefore, come to the conclusion that each tonsil should be carefully examined and remember that the gain is not without some loss.

The following outline will show in a concrete form some of the indications for a tonsil removal. The differentiation between children and adults is made as the physiological function is more important in children, while in adults the question is more mechanical.

INDICATIONS FOR THE REMOVAL OF TONSILS.

Indications.

1. CHILDREN UNDER FIFTEEN.

- Acute.* Repeated tonsillitis.
Repeated peritonsillitis.
Inflammatory conditions involving ears.
Acute rheumatism, especially when recurrent.
Nephritis following tonsillitis.
Chorea.
Endocarditis.
Suppurative adenitis.
Acute obstruction.
Middle ear disease, with obstruction of Eustachian tubes.
- Chronic.* Large protruding tonsils, with constant effort to swallow.
Chronic throat cough.
Chronic local inflammation.
Marked adenitis.
Degenerated tonsils, with pus pockets.
Muffling voice.
General lowered resistance.
When associated with adenoids and improper evolution of jaw during second dentition.
Tubercular.

2. ADULTS.

- Acute.* Repeated tonsillitis and peritonsillitis.
Obstruction to speech or breathing.
Rheumatism acute and chronic.
Focal infections.
Nephritis, especially following tonsillitis.
- Chronic.* Chronic pharyngitis, with crypts of tonsils showing much detritus.
General lowered resistance, with doubtful etiology.

Contraindications.

1. CHILDREN.

- Acute febrile conditions.
Recent infections.
Probable inability to withstand shock.
Bleeders.
General contraindications for an anesthetic or local anesthesia.

2. ADULTS.

- Same as in children.
Singers.

The question is not, as the layman thinks, how large the tonsil may be, but is the tonsil in a physiological or pathological state. If pathological, how extensive, and is the entire tonsil involved? Some advocate if only a few crypts are involved, to open them freely with a knife or cautery to secure good drainage. This is admittedly very difficult in children unless they are anesthetized, but the principle is right and the shock is much less than in tonsillectomy.

Dividing the tonsils into large free and large buried, small free and small buried, it is found that the buried tonsil, large or small, is more often the seat of chronic infection than the large fibrous type.

In children, particularly, one tonsil may be the seat of trouble while the other may still be quite normal. In these cases only the diseased organ should be removed. For, as Makuen says: “I am one of those who take it for granted that the faucial tonsil has important bactericidal and protective systemic functions, and I am convinced beyond doubt that in its normal state, at least, it has some very important mechanical

functions which are particularly operative in the production of voice and speech."

Pioneer work in showing the tonsil to be the seat of many so-called focal infections has been done by Rosenow, who gave us a most instructive evening in presenting his work in person at one of our last year's meetings. Much work has been done, with some failures, but many more brilliant results. We have all seen marked constitutional changes, both in children and adults, following the removal of tonsils even when there were no noticeable symptoms pointing to the tonsil as the seat of infection. The vaccines made from the tonsil have the advantage of being autogenous, with all the advantages this name implies. Age should not be a contraindication for removing a diseased tonsil. Chronicity of arthritis or extent of deformities should not deprive a patient of the only hope of a cure or the checking of otherwise progressive conditions.

The contraindications to the removal of diseased tonsils are not many, but are nevertheless important. Under ordinary circumstances febrile conditions, recent infections, probable inability to withstand the shock, bleeders, and general contraindications for an anesthetic or local anesthesia may be mentioned.

The question of tonsillotomy vs. tonsillectomy is intentionally not touched upon. I personally feel that this might be discussed from two distinct standpoints, as: theoretically or concrete; specialist or the man who is to have the pleasure, or who anticipates the pleasure of seeing the patient for some time after the operation.

We often have great difficulty in securing consent for the operation in urgent cases. If a second operation or repeated treatments are required after an operation is performed, a large majority of these cases are neglected because "it didn't do any good." I believe, therefore, before trying to apply any given rule or possibly theoretical consideration, we must first study our case objectively and sociologically as well.

Conclusion: Diseased tonsils should be removed, but all factors should be as carefully weighed as in major operations; considering shock, more or less interference with the delicate neuromuscular adjustments and scar tissue, as well as the probable physiological function in children, each tonsil should be given a careful, individual examination.

Many tonsils will respond to local treatment if the involvement is but slight and proper drainage is established. Diseased tonsils, whether large or small, should be removed in all cases if the conservative treatment fails. Removing the tonsil and making vaccines from the contained bacteria in such diseases as rheumatism, endocarditis, arthritis, some cases of nephritis and neuralgias, is a duty when other treatment fails.

DIAGNOSIS AND ELIMINATION OF CHRONIC FOCAL INFECTIONS ASSO- CIATED WITH TEETH.*

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One finds in dental and medical literature during the last twenty-five years the frequent appearance of articles containing the statement that there is a close relationship existing between some chronic oral infections and certain systemic diseases. However, it was not until the appearance of articles by such noted physicians as Drs. Poynton, Payne, Lambert, Hunter, Kenneth Goadby of Europe, Frank Billings, Wilbur E. Post, D. J. Davis, E. C. Rosenow, J. B. Murphy and Charles Mayo of America, that the more progressive members of our profession realized the seriousness of the relation that exists between chronic focal infections and such systemic diseases as chronic arthritis, neuritis, nephritis, the cardiovascular degenerations, neurasthenia, iritis and myalgia.

Personally, I accept the teachings of these men upon the systemic effect of chronic focal infections and oral sepsis as being beyond scientific dispute. The full significance of the relation of chronic focal infections to serious disease has been made more plain by the recent contribution of Rosenow on the "Elective Localization of Streptococci," in which he points out if the specific strains are taken from the human suffering, for example, from appendicitis, ulcers of the stomach and duodenum, cholecystitis, epidemic parotitis, myositis and endocarditis and introduced into animals, the animals become infected with appendicitis in 80 per cent. of the cases; ulcers of the stomach, 60 per cent.; cholecystitis, 80 per cent.; rheumatic joints, 66 per cent.; myositis, 75 per cent., and mumps, 73 per cent.

*Read before the Chicago Medical Society, April 12, 1916.

With the evidence before us that the streptococcus is the predominating factor in the production of the foregoing serious diseases; secondly, because of the established evidence presented by Drs. Gilmer and Moody, Hartzell and his associates, that the streptococci are also the predominating bacteria in chronic infections associated with teeth, and thirdly, because of the sole dependence by many upon radiograms for diagnosis of infected areas, normal dental structures are so frequently being sacrificed, it has become essential that additional evidence be secured to ascertain if a suspected tissue is the seat of a chronic infection before surgical interference is instituted or teeth extracted. The last statement was made because I know of many instances where operations have been suggested and performed about the mouth and jaws to remove supposed chronic infected tissue that did not exist. Whether similar mistakes in diagnosis have terminated with the needless removal of tonsils and other tissues which are frequently the seat of chronic focal infections I leave to the general practitioner and other specialists to affirm.

Having declared my faith in the doctrine that chronic focal infections may be the cause of many serious chronic systemic diseases, let us now pass to a consideration of the diagnosis and determination of elimination of chronic focal infections occurring in the soft tissues, bone and alveolar process forming the jaws. In my opinion, next to the faucial tonsils, the infected bone cavities found about the root ends of pulpless teeth having no discharging sinuses are the most frequent cause of the spoken of chronic diseases. In 1913 I began the undertaking of ascertaining the usual blood findings in consecutive cases of chronic oral infection to determine if valuable information could be collected which would be of benefit in reaching a decision that a chronic oral infection, though producing little or no discomfort, was in reality sufficiently active to produce characteristic blood changes which would be of diagnostic aid in deciding in favor of treating the infected foci with retention of the teeth or demanding extraction and possibly curettement of the area. Furthermore, I wished to determine if I could gain additional knowledge that would inform me when all infected areas were removed and the tract not reinfected during the healing process with the end result of the wound healing

apparently normally and leaving an infected tract similar to the one that acted as the initial etiological factor. Before discussing the case records, I desire to call attention to the fact that they were all of patients presenting at my office and should not be compared with those secured from individuals confined to the hospital from ill health. (These examinations were never made after the patient had partaken of a heavy meal and were all made by one person.)

I herewith report on the blood findings of the first 162 out of my 272 consecutive cases of chronic oral infection associated with teeth, of which 110 are advanced pyorrhea cases where the clinical evidence of pus was present and in 96 per cent of the cases some teeth had been lost or were so seriously involved with the disease that extraction was demanded. The remaining 52 cases are of patients having chronic periapical infection without evacuating sinuses; however, 18 cases had pyorrhea co-existing. For the convenience of study I have divided them into groups which can best be illustrated with stereopticon slides that also show the hemanalysis of typical cases.

DISCUSSION OF CASES SHOWING BLOOD FINDINGS AND CHANGES.

1. In the examination as here made, I found in 100 of 162 cases that blood changes had occurred that were held to be the sequence of chronic oral infection associated with teeth.
2. That neither pronounced nor moderate anemia were commonly associated with chronic oral infection in this series, as claimed by many authors, as pronounced anemia was found but once.
3. That leucopenia was more constant than leucocytosis in pyorrhea cases where the blood findings were abnormal; furthermore, leucopenia was more frequent in those cases where the pyorrhea pockets did not involve the root ends and in the absence of periapical focal infection without discharging sinuses.
4. That leucocytosis when associated with pyorrhea was most frequent where the pyorrhea pockets extended nearly to or did involve the root ends.
5. That abnormal blood findings were present in only forty-eight of the one hundred and ten pyorrhea cases examined.

6. That leucocytosis was present in forty-seven of the first fifty-two cases of periapical infections without discharging sinuses—but that leucopenia does occur under the same conditions and was twice present in this series. Let the foregoing statement be not misconstrued to mean that either leucocytosis or leucopenia is always present when a periapical infection without a discharging sinus is found,—we have cases of chronic infection at root ends where the blood findings were normal, if such evidence is needed, for naturally periods arise when the effect of the pathogenic bacteria and toxins is so slight that no blood change is manifested. But, since severe secondary infections could occur during this period, a focal infection though producing no characteristic blood change must always be looked upon as a menace to the health of the patient and its eradication demanded.

Almost universally the patient was unaware of any discomfort about the tooth having chronic infection; the exception as a rule was where the involvement was advanced pyorrhea alveolaris. I recently had three patients present where the morning temperature was subnormal, varying from one to one and one-half degrees, and an afternoon abnormal temperature of from one-half to two degrees, which ceased, as did the secondary involvement with the removal of the chronic infection about root ends. In a number of instances patients had the following symptoms besides the secondary disturbances, severe mental depression; brief periods of dyspnea associated with sharp pains in the thyroids; severe one-sided headaches; pain described as starting at the base of the brain spreading backward, upward and forward; gastric disturbance taking the form of nausea following severe short periods of nervous depression. In some instances the patients would affirm they felt normal throughout the day with the exception of acute fatigue lasting from one-half to one and one-half hours with the onset sudden and the passing gradual.

I desire to call attention to a few cases for the purpose of showing the changes occurring in the blood picture with the eradication of the focal infection when a patient presents with an abnormal blood finding:

The usual blood findings in pyorrhea cases where the disease does not involve the apical third of the root.

Case 135—Aged 57 years.		Case 65—Aged 62 years.	
Sept. 19, 1914.		Oct. 27, 1914.	
Hemoglobin	88%	.....	88%
Erythrocytes	4,024,000	.....	4,640,000
Leucocytes	5,600	.....	6,600
Polymorphonuclears ..	54%	.....	58%
Large Mononuclears..	4%	.....	9%
Small Mononuclears ..	39%	.....	31%
Eosinophiles	3%	.....	2%
Systolic	130	.....	120
Blood Pressure—Diastolic	90	.....	92
Pulse pressure.....	40	.....	28

Case 253, aged 24 years. Patient suffering from severe sciatica for three months, confined to the hospital for three weeks. Molar tooth extracted because of the presence of a chronic infection about the root end two months previous to my examination and patient improved for ten days. Then the sciatica returned in its full intensity and he was unable to walk for a few days at a time. Careful examination of the socket from which the tooth was removed revealed the presence of a chronic infection. Afternoon abnormal temperature of one-half to two degrees.

Hemanalysis before and after the infected area had been eliminated.

Feb. 18, 1916.		Mar. 17, 1916.	
Hemoglobin	93%	.....	95%
Erythrocytes	4,520,000	.....	4,888,000
Leucocytes	9,200	.....	7,000
Polymorphonuclears ..	72%	.....	58%
Large Mononuclears..	11%	.....	11%
Small Mononuclears ..	17%	.....	30%
Eosinophiles	0%	.....	1%

Socket curetted February 18, 1916. Sciatica was exaggerated and patient was confined to his bed for a few days, but gradually improved and on April 1, 1916, took a position as intern.

Case 64, aged 48 years. Patient suffering from serious iritis. All causative factors with the exception of pyorrhea about the four inferior incisors had been excluded. Chronic infection about these teeth thought to be the definite cause of the iritis. Teeth extracted one week ago, patient feels there has been some improvement since the extraction of the teeth. Mouth had been examined and declared to be free from all chronic infection. Radiograms showed two bone abscesses. Hemanalysis showed possible effects of chronic infection upon the system.

Hemanalysis before and after the infected areas had been eliminated.

Oct. 23, 1914.		Nov. 4, 1914.	
Hemoglobin	70%	.....	93%
Erythrocytes	4,440,000	.....	4,732,000
Leucocytes	10,400	.....	7,600
Polymorphonuclears ..	72%	.....	64%
Large Mononuclears..	1%	.....	6%
Small Mononuclears ..	25%	.....	29%
Eosinophiles	2%	.....	1%

Teeth extracted and bone areas curetted October 24, 1914. Vision reported normal by those in charge November 3, 1914.

Case 225, aged 37 years. Patient suffering from articular rheumatism for seven years. Tonsils removed two years ago. Hemanalysis revealed the possible evidence of chronic infection. Radiograms showed rarefied areas about the root ends of two teeth.

Hemanalysis before and after the infected areas had been eliminated.

Dec. 4, 1915.		Jan. 12, 1916.	
Hemoglobin	94%	.....	99%
Erythrocytes	4,448,000	.....	4,752,000
Leucocytes	14,000	.....	7,800
Polymorphonuclears ..	75%	.....	60%
Large Mononuclears ..	3%	.....	7%
Small Mononuclears ..	20%	.....	32%
Eosinophiles	2%	.....	1%

Teeth were extracted and areas curetted. Hemanalysis taken five weeks later was normal. The articular disturbance was not exaggerated for the next few days after the operation as is frequently the case. Patient had gradually improved and is able to get about comfortably.

Case 106, aged 46 years. Patient complained for years of severe pains starting at the back of the neck and base of brain, radiating up the back of the head and forward to the temples with fleeting pains in the anterior part of the upper jaw. Hemanalysis revealed the possible evidence of infection.

Hemanalysis before and after the infected area had been eliminated

Feb. 12, 1915.		Apr. 21, 1915.	
Hemoglobin	91%	.....	96%
Erythrocytes	4,456,000	.....	4,784,000
Leucocytes	11,200	.....	7,000
Polymorphonuclears ..	74%	.....	61%
Large Mononuclears ..	2%	.....	5%
Small Mononuclears ..	24%	.....	32%
Eosinophiles	0%	.....	2%

Radiogram showed the presence of an impacted tooth with a rarefied area present. Tooth was removed and the area curetted. In ten days the severe headaches ceased and to date there has been no return.

Case 217, aged 38 years. Patient suffering from neurasthenia for three years, complained of periodical pain in the thyroids and nausea following the more severe periods of nervousness. Pains in the neck radiating up over the head with a fullness in the ears. Repeated examination of the entire body, with the exception of the mouth, found nothing abnormal that could be held as a causative factor. The hemanalysis showed the possible evidence of chronic infection. The radiograms revealed rarefied areas about the root ends of three teeth and two impacted third molars.

Hemanalysis before and after the infected areas had been eliminated.

Nov. 18, 1915.		Dec. 23, 1915.	
Hemoglobin	96%	.....	97%
Erythrocytes	4,952,000	.....	4,704,000
Leucocytes	12,000	.....	8,200
Polymorphonuclears ..	76%	.....	62%
Large Mononuclears ..	8%	.....	3%
Small Mononuclears ..	16%	.....	35%
Eosinophiles	0%	.....	0%

The more extensively involved teeth were extracted, the areas curetted and the other teeth retained and treated. The blood findings changed to normal. The secondary involvement was exaggerated for a few days after the operation followed by a total disappearance of the above stated symptoms and a gradual improvement in health.

In case No. 79 the hemanalysis showed hemoglobin, 93 per cent.; erythrocytes, 4,840,000; leucocytes, 9,600; polymorphonuclears, 70 per cent.; large mononuclears, 5 per cent.; small mononuclears, 25 per cent.; eosinophiles, 0. A few days after the dentist had been able to carry the remedy to or through the root end, the blood count changed to hemoglobin, 100 per cent.; erythrocytes, 5,016,000; leucocytes, 8,000; polymorphonuclears, 60 per cent.; large mononuclears, 8 per cent.; small mononuclears, 30 per cent.; eosinophiles, 2 per cent. The secondary involvement began to improve and continued to do so until a brief period after the root canals were filled; then, upon complaint from the patient that the original secondary trouble had returned, another blood count was taken, which showed hemoglobin, 100 per cent.; erythrocytes, 4,976,000; leucocytes, 10,400; polymorphonuclears, 72 per cent.; large mononuclears, 2 per cent.; small mononuclears, 24 per cent.; eosinophiles, 2 per cent. A radiogram then taken proved the root canals had not been more than two-thirds filled. The root canal filling was removed and treatment again undertaken. The dentist in charge decided he would be unable to perfectly fill the canals and the patient was allowed to go with the remedy in the tooth for six weeks. The neuritis increased and the blood examination made six weeks after the last treatment had been placed showed it to be practically the same as the original count. I removed the tooth and curetted the periapical area. The blood count taken a few days after was normal: Hemoglobin, 102 per cent.; erythrocytes, 5,008,000; leucocytes, 8,400; polymorphonuclears, 63 per cent.; large mononuclears, 5 per cent.; small mononuclears, 32 per cent.; eosinophiles, 0. The neuritis ceased.

Case 70 was a patient thought to be suffering from a chronic infection in the form of pyorrhea only and the blood examination showed slight leucocytosis, which did not materially change after treatment, nor did the first series of radiograms of the teeth show a rarefied area, but upon Faradic test a pulpless bicuspid was found. This tooth was treated—root canal filled—the secondary involvement disappeared, the blood count returned to normal and has remained so.

The question might naturally arise in the minds of the medical men present, why occupy time with

illustrations that go to demonstrate the possibility of perfectly filling root canals and controlling the periapical infection about teeth in favorable cases? My answer is, it is of urgent importance because many medical practitioners in searching for focal infections have found such a large percentage occurring about root ends of teeth where root canals have been filled that they have reached the conclusion it is unsafe to retain a pulpless tooth and have informed patients an infection always occurs about it and requested extraction. In other instances they have demanded of dentists not to remove pulps and fill root canals for any of their patients. With some it has become common practice to decide what is best for the patient's teeth from radiograms, with the result there has unfortunately developed during the last few years, a feeling of discord between the members of the medical and dental professions over this problem of who should decide what to do with teeth involved with chronic infection. Until the last five years it is true the dental profession has not been sufficiently careful in filling root canals definitely and aseptically and much of the criticism was justified; but at the present time an increasing number of dentists are employing every known aseptic measure and are checking up root canal operations with radiograms. Therefore, is it not unwise for any group of men, either dental or medical to decide that a chronic infection always occurs about the root end of a pulpless tooth until more definite proof is at hand?

The foregoing case histories and last statement give me the opportunity to focus the attention of those called upon to determine the presence of chronic focal infections associated with teeth, not to confine their examinations only to the supporting structures and radiograms taken of the roots to outline rarefied areas, for one may have a pulpless tooth present without a rarefied periapical area and at the same time have a chronic infective process in the remnants of pulp tissue, which I have found to be accountable for serious secondary effects.

Nor can one with any degree of assurance eradicate periapical infections by the mere extraction of teeth unless it be accompanied by a curettement, and in a few instances I have had patients go several months without symptoms of the original secondary involvement and then have noted

their appearance without the development of a new focal infection and upon making blood examinations I found the possible evidence of a chronic infection, although the tissue had healed with every appearance of being normal over the area where the tooth was removed. I then opened into the old infected tract, curetted and in one instance the patient had a definite reaction similar to that experienced after injection of an autogenous vaccine during the original treatment. A second patient had a less marked reaction. Therefore, it becomes necessary to do something more than to extract teeth or amputate roots and do an indifferent curettement to secure positive elimination of focal infections associated with teeth.

The appropriate procedure when a patient is suffering from a disease possibly caused by a chronic oral infection is to have radiograms taken of all teeth and their supporting structures and of the jaws for partially or totally impacted teeth. If questionable areas are found, blood examinations should be made; then if the physician with the patient will consult the family dentist or oral surgeon to determine if the infection can be controlled with retention of the teeth or if extraction with or without curettement is indicated and also ascertain the important information whether or not any tooth contains an infected pulp which the radiogram would not reveal in any case, then and then only will the patient's welfare in so far as the mouth and teeth are concerned be properly protected. I speak of this conference because I am aware that in many communities there are medical men who maintain every tooth should be extracted about which a chronic infection is found and on the other hand we meet dentists who wish to retain most of these dental organs. In closing this part of the discussion I wish to give a word of warning against the removal of many teeth for these patients at one time for serious effects have frequently resulted when too many infected areas have received simultaneous surgical treatment. Even in the removal of a single infected area, we expect an exaggeration of the symptoms resulting from the secondary lesion.

The sane position to take, as I see it, is: It is unwise and possibly unfraternal for the medical profession to decide when such teeth should be extracted. For as a body they have not been

trained sufficiently in dental pathology to know when a chronic periodontal infection is extensive enough to demand extraction. Therefore, the dental profession can rightfully ask the courtesy of the medical profession that such patients be referred to the family dentist who will diagnose alone or in consultation with those particularly fitted in this work, whether the teeth can be retained and the chronic infection permanently controlled. Yet, some medical specialists have informed me they are not justified in sending the patient to the family dentist because he will not assist in demanding the extraction of all hopelessly diseased teeth and this to a degree is true, for we find many members of the dental profession who, day after day, are retaining teeth for bridge abutments, about which exist incurable chronic infections. All such teeth should be extracted and the diseased areas around them properly treated. Hopelessly diseased pyorrhea teeth are sometimes retained because they can be made comfortable, root ends are being amputated without regard to the surrounding bone involvement—to the end that in both instances the infection is only temporarily controlled and the injurious effect to the patient allowed to continue.

As I see it the dental profession must adopt this axiom. All teeth involved with pyorrhea or having chronic infection about root ends which cannot be controlled must be extracted—or stand convicted before the medical profession and the public as being unable or unwilling to properly care for the health of patients in accordance with the findings of our most scientific investigators.

The prophesy is here made that chronic infections associated with teeth will not be effectively managed until the dentist's education includes more of bacteriology and general pathology and the physician's knowledge of dental pathology is more comprehensive. But until this much needed state of affairs is attained, can we not agree with William Hunter, author of the term "Oral Sepsis," when he affirms the treatment of the lesions of strepto and staphylococci found in the mouth, throat, nose and accessory sinuses belongs to no one department of medicine or surgery, but is common ground upon which the general practitioner of dentistry and medicine, physician and surgeon, eye, ear, nose and throat specialist, and lastly the internist and oral surgeon all meet with equal responsibility?

In closing I wish to express my appreciation of Hunter's early studies upon the effects of oral sepsis and the valuable contributions of Billings and his associates upon the systemic effects of chronic focal infections.

SOME COMMON ERRORS IN THE PRACTICE OF OBSTETRICS.*

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The art of obstetrics is still far from perfect. Labor is too frequently a pathological phenomenon and the errors of commission and omission often entail severe and lasting injury upon the lying-in woman so that many of them dread the ordeal of accouchement as they would a serious abdominal operation. Unfortunately, the low fees obtained for obstetric delivery in most cases constitute the main reason for the apparent neglect by the physician in his treatment of these cases, despite his adequate training in the modern medical college and the judicious advice found everywhere in the modern text-books and the higher grade of medical journals. Only when the obstetric fee is raised to a respectable figure or the scientific conscience of the physician is sufficiently aroused from its seeming lethargy may we hope to improve the morale of the obstetric art.

It is my present purpose to call to your attention briefly some of the most flagrant errors in the treatment of the lying-in woman as they have come to my attention in consultation and hospital practice, that by so doing I might stimulate the desire to render more efficient service to the patient who trustingly places her life and well being in our professional keeping.

The introduction of pituitrin in obstetric therapeutics marked a great advance in our art, but like many other agencies, it has also become a power for evil. The physician sees in this adjuvant a means of hastening the birth of the child and of avoiding the otherwise necessary watchful waiting which is imposed upon him. Many physicians use it in every case as a routine measure, often with disastrous results to both mother and child. This drug has the same injurious effects as the too early application of the forceps and may result in tears of the cervix,

*Read before the West Side Branch of the Chicago Medical Society, April 20, 1916.

vagina and perineum, prolapse of the uterus, bladder and rectum and death of the child by asphyxia. In two cases which came under my observation during the past year uterine rupture occurred, one of which required a Porro operation to save the mother's life. Too large doses are used; an ampoule, 15 minims, being the recognized dose and this is repeated several times if delivery does not take place. As a matter of fact, not over 5 minims should be used at one time and 3 minims are often sufficient. If the indications are strictly drawn, the best results are obtained by this latter dosage. The rapid action, the long continued uterine contraction interfering with the fetal and maternal osmosis of gases and the tumultuous *vis a tergo* produced are the signal drawbacks to its administration in the larger quantities.

From a long and successful experience with this agent, I have recognized the following conditions governing its use:

1. Multiparæ.
2. Cervix effaced and os dilated.
3. Head at the outlet or freely moveable in the pelvis.
4. No abnormal presentation.
5. Preparations for forcep delivery in case of tonic uterine contractions threatening the child's life.
6. Small doses, not over 5 minims, and better 3 minims, which may be repeated not oftener than once every half hour.
7. Pituitrin should not be given to *hasten a normal delivery*.

In other words, the resistance offered by the birth canal and maternal soft parts must be nearly overcome and only a few strong pains being sufficient to effect delivery.

The birth canal is not a straight cylinder nor is the fetal head a sphere to be seized in any manner with impunity by the forceps. This is a fact not practically recognized by many, and as a consequence, additional trauma is inflicted upon both mother and child. The importance of accurate diagnosis of fetal position cannot be overestimated, especially in forceps delivery. The difficulty of making a correct diagnosis late in labor when the cephalic landmarks are obliterated by the caput succedaneum and the associated edema of the maternal soft parts is recognized by all. This difficulty is easily solved by

determining the position of the ear and from this finding the direction of the occiput is readily made out; a point in diagnosis reported by the author in 1907. By following this method of making a diagnosis, errors are few and by adjusting the fetal head to the various planes and diameters of the pelvic canal, a minimum amount of traction and pressure will be necessary to effect delivery. When one observes the large number of children brought into the world in a mutilated condition, he must admit that a faulty diagnosis of fetal position is the most common etiological factor.

The too early application of the forceps associated with delivery forcé and not according to the recognized rules of technique is a very common error. The most frequent indication for the forceps is "office hours." One fundamental difference between the general practitioner and the obstetrician is that the latter knows how to wait; the former does not. Nature requires and demands that the preparation of the soft parts for delivery shall be made slowly; many hours are often required in the average case and the future well being of both mother and child depend upon non-interference with the natural powers of labor. The earlier interference is attempted, the greater is the trauma inflicted upon the mother. It seems strange that forceps are being applied through the uneffaced cervix and undilated os, but such is the case in a great many instances. The dangers of such a procedure are too well known to mention. Only last week in a large hospital in Chicago, on applying forceps, the interne asked the author if he would "brace" him by putting his shoulder against his back, stating that many physicians required this support to avoid falling backward from the chair and permitting them to use greater force. Comment is not necessary, but the shame of it is unspeakable. These twentieth century physicians are still using the methods in vogue in the sixteenth century. In the bright sunlight of scientific knowledge and modern learning, these men are still groping their way along the darkened recesses of the middle ages. If teaching, writing and speaking are not able to change this pernicious practice, and apparently they are not able to do so, what does the future hold in store for us? Are the future mothers and children of this land to be subjected to this increasing peril which

permeates every locality with its enervating blast? The time has long since passed when this practice should cease.

Lacerations of the soft tissues including the perineum may occur in the hands of the most efficient obstetrician and the physician should not be blamed for their occurrence *per se*, but to neglect an immediate repair of the trauma insures a verdict of guilty. Immediate perineorrhaphy is not a simple procedure, judging from the number done and the results therefrom. It is a common experience in the consulting room of the gynecologist to examine a relaxed and torn perineum after the patient has stated that her physician had repaired the perineum. If the physician would examine every woman some six months after delivery upon whom he had performed perineorrhaphy, he would be in a better position to judge of the character of his work. It is probable that not over 25 per cent. of the women in average hands escape from a lacerated perineum with a serviceable organ. Better training in surgical technique and routine examination of the soft parts only will remedy this defect. Only when one considers that the pelvic floor is the inverted keystone of the arch in female physical health does he realize the importance of perineal contiguity and efficient repair. It is necessary to suture the separate layers of fascia and muscles to their contiguous ends, to suture the vaginal mucosa together to keep the lochia out of the wound as much as possible and to suture the skin accurately. The sutures must not be too tight nor too loose and the after-care during the process of healing must be efficient. This is a far different procedure than the haphazard method of through and through suturing with catgut and then turning the case over to some casual woman to keep the parts clean. No matter how well the suturing has been done, the end results depend upon the after-care. The performance of episiotomy which extends beyond the anterior border of the levator ani muscle will obviate many a tear and gives the operator a clean cut field for repair. Its employment should be increased.

The integrity of the pelvic floor is of great assistance in preventing the occurrence of prolapse of the various organs of the pelvis and labor should be conducted so that prolapse will not take place. Early traction with the forceps, bearing

down efforts of the mother during the first stage and neglect in repairing lacerations all exert their influence toward this unfortunate condition. So many women in their early twenties suffering from procidentia after a single forceps delivery convince us that the physician needs to revise his methods of treatment in this respect.

A very common error of omission is the neglect of the lying-in woman during the puerperium. The normal period lasts about six weeks and the changes taking place during this time are all important. Neglect of the patient may result in subinvolution of the uterus, retrodisplacements, rectocele and cystocele, permanent rectal diastasis, constipation and the various disturbances of neurasthenia. Certainly, these untoward conditions are grave enough to warrant our care and treatment during this critical period. The average physician will give his close attention to a case of evanescent measles or chicken-pox, but he will simply neglect the puerperal patient when so much depends upon a normal involution of the organs. The reason, of course, is that the physician is expected to make two or three calls which are included in the original fee and that any extra calls are not paid for. Again, the reason is money. The great frequency of ill health, of surgical operations, of great expense to the family and the entailed suffering surely give evidence to the fact that competent medical attention is necessary during the period of involution. One can only say with truth that he has managed an obstetric case successfully when some six or eight months after delivery the mother suffers from no pelvic or abdominal wall pathology and that her health is equal to that which she enjoyed at the beginning of pregnancy. Judged by this standard how many of our cases are properly treated. Labor, theoretically, is a natural phenomenon and as such should be performed without injury to the maternal tissues or perversion of the normal functions: practically, it is, as De Lee has justly stated, a pathological process and, except in competent hands, results in injuries to the maternal tissues and more or less permanent perversion of the normal functions. The chasm between the real and the ideal is wide and deep and its obliteration depends upon the conscious care and ability of the general practitioner.

Puerperal sepsis is on the increase. About 5,000 women died in the United States during the

year 1913, according to the last census. The number of those infected who have recovered must be very great. While some cases of puerperal sepsis are due to germs resident in the patient's body, the majority are caused by the infective hands, dressings and instruments of the medical attendant or nurse. Shaving the vulva at the beginning of labor and the substitution of rectal for vaginal examinations will greatly decrease the number of infected cases. Labor is conducted by two methods of antisepsis—extensive and intensive. By the extensive method, as is carried out in hospital practice, the bed, table, basins, patient and attendants are covered with sterile dressings. The gowns, gloves and instruments are sterilized and placed in position. These dressings soon become contaminated with organisms from the dust and air. The physician, assuming that they are still sterile, handles them with impunity. He touches with his gloves the towels, sheets and gowns that have been exposed to non-sterile influences, sometimes for hours, and transmits these germs into the vagina and cervix. A small hole in the glove allows the retained perspiration to escape and this secretion is teeming with bacteria. One can easily see the many dangers connected with this method of antisepsis even in the otherwise well regulated hospital.

The other and better method is known as the intensive method and has been for years in vogue in the out-door department of the Chicago Lying-in Hospital. The gloves and basins are sterilized at the patient's home; the vulva is shaved and cleansed with lysol and bichloride solution. The abdomen is covered with a plain laundered towel wrung out of the bichloride solution. The fact is impressed upon the internes that the only sterile areas are the gloves, the insides of the basins holding the solutions, the cotton in the sterile glass jars (sterilized at the dispensary) and the edge of the vulva—relatively sterile. The abdominal towel is not regarded as strictly sterile. Every other material is regarded as unclean and is treated accordingly. The attendant, then, during his conduct of the labor, touches nothing but the solutions, basins, vulva and the fetus as it is delivered. The results obtained by this method, in the homes of the Ghetto patients where sanitation is so poorly understood are wonderful and the mortality and morbidity rates are no higher than those of many first-class hospitals. These

two methods should be combined in every case in the hospital and home if properly carried out the frequency of puerperal sepsis will be reduced to a marked degree.

A rather common error is the willful interference with the mechanism of the third stage of labor. The process of placental separation usually takes half an hour. The retroplacental blood confined by the attachment of the membranes to the uterine wall plays the chief rôle in this process. If no uterine massage is indulged in, the placenta is completely separated and is expelled intact. If the process is interfered with, the blood is forced through a rupture in the membranes and escapes prematurely and retention of placental tissue results. Another danger of the common error of uterine massage is the liability of postpartum hemorrhage. It takes from 20 to 30 minutes for the blood in the uterine sinuses to clot and firmly adhere to the sinus wall so that the *vis a tergo* cannot expel it. If frequent massage is performed, these loosely attached clots are expelled, form again and are again expelled with the result that when the third stage is completed, the cohesion of the clots to the sinus wall is so weak that postpartum hemorrhage occurs. Many young men in their first years of practice learn this fact by sad experience, but as time goes on their cases of hemorrhage become rare. Some never learn the lesson and in the experience of these latter men the larger number of bleeding cases are found. The rule is, do not be in a hurry; never massage the uterus except in the presence of a serious health or life threatening hemorrhage; then usually the placenta is to be removed manually and the uterus tamponed. Merely supervise the uterus and prevent it from filling up with blood and rising high in the abdominal cavity.

The last point to which I wish to call your attention is a plea for the more extended use of the tracheal catheter in the treatment of fetal asphyxia. In my own experience it has saved the child's life in scores of cases when no other means were available. A frequent cause of asphyxia is the collection of mucus, blood or liquor amnii in the trachea and unless this is removed quickly, the child will die. The only way to remove it is by the tracheal catheter. One can easily remove the mucus from the throat, but the passing of the catheter is rather difficult unless one has had some

experience in the technique. The forefinger of the left hand is passed into the throat down to the epiglottis, the catheter is passed along the palmar surface of the finger and when the tip reaches the epiglottis, it is forced anteriorly and is made to enter the glottis. The mucus is then withdrawn and frequently the child cries at once. If not, the catheter is reintroduced and the operator blows into the lungs of the child to expand them and by compressing the chest, this air is expelled. By continuing these motions, many a child can be saved. It is probably true, however, that not one physician of fifty in general practice possesses or can use a catheter properly. The technique is easy to learn and the results are exceptionally good. It seems hardly fair to ask the mother to go through the strain of pregnancy and the ordeal of labor to lose her baby through an error at this critical time, and yet it happens every day.

On the other hand it has been my good fortune and pleasure to bear witness to excellent work done by very many physicians whom I know and in the abstract to thousands of others who are quick to improve their methods when faulty and who are eager to perform their duty fully and conscientiously for the best interests of their patients.

PROGNOSIS BY NUCLEAR UNITS.

H. H. SEYL, M. D.,
CHICAGO.

Arneth long ago established that polymorphonuclear leucocytes may be grouped into five classes, as per the nuclear lobes in each cell. He also showed that in many diseases a transition occurs and that the number of the lower increase and the higher decrease correspondingly.

He counts one hundred such cells and places each in a column that represents the number of its nuclear lobes or units, the number of columns being five.

The normal blood shows about as follows:

Nuclear lobe column.....	I	II	III	IV	V
Number of cells.....	5	35	41	17	2

That the above is true, is granted, but no rational index for its interpretation has been established and therein lies the value.

The old method of attempting to establish an index was to add the number of cells in the first two and a half columns, as given previously.

This properly classifies the units, but it disregards them at once by respecting only cells in the Count, and only a part of them. Such procedure then does not recognize the Transition. Since a transition does occur, all cells must be respected. Any Index which does not, is not true and so is of little value for prognosis, or diagnosis.

The old method varies even when compared to itself, as shown by the following:

Columns	I	II	III	IV	V	
Count A	27	42	23	7	1	80.5
Count B	24	49	21	5	1	83.5
Count C	30	38	26	5	1	81.0

If B be a true index, by the old method, then A should be higher than C, or if A be O. K., then B should be lower than C.

The old method will be compared with the new nuclear index, and it will show further discrepancy.

It is simple to obtain an accurate prognosis of various diseases by the author's new count, but it must be remembered, the value is dependent upon the relative competency of the operator.

The method is this: One hundred cells are counted and classified as in the old way. The next step is to multiply the number of cells in a column by the number of nuclear lobes, which it represents. This gives the total nuclear units in that column. So all the columns are treated. The totals of all the columns are then added, giving a grand total. This grand total is the number of nuclear lobes in one hundred cells, which were counted and classified.

Example:—Number of lobes	I	II	III	IV	V
Number of cells	46	32	18	4	0

Process— $46 \times 1 + 32 \times 2 + 18 \times 3 + 4 \times 4 + 0 \times 5 = 180$. Grand total or index.

Normal blood is about	I	II	III	IV	V
	5	35	41	17	2

(Index) = 276.

Let us now compare the two counts. We respect the new index as authentic, and so compare the old with it. Given two examples, in which two new counts are equal, it will be seen that the old varies greatly.

Example I.

Number of lobes	I	II	III	IV	V	New	Old
	18	41	35	5	1	230	76.5
	35	40	27	6	2	230	88.5

Example II.

Number of lobes	30	38	26	5	1	209	81.0
	24	47	25	4	0	209	83.5

In general it may be said that the lower the index the more unfavorable the prognosis.

At the Chicago Fresh Air Hospital the author established the following with accuracy:

	The index is from
Tuberculosis, arrested cases.....	215 to 250
Tuberculosis, incipient cases.....	195 to 215
Tuberculosis, moderately advanced....	180 to 195
Tuberculosis, far advanced & terminal	180 down

All cases of 135 or less died. The far-advanced cases are usually about 150.

At the Augustana Hospital, Chicago, further substantiation was displayed.

Case 1. *Pernicious anemia* (patient recovered).
Before splenectomy and transfusion—Index = 113 (2 hours before).

After splenectomy and first transfusion—Index = 106 (10 minutes after).

After splenectomy and second transfusion—Index = 117 (22 hours after).

After splenectomy and second transfusion—Index = 121 (80 hours after).

After splenectomy and second transfusion—Index = 124 (9 days after).

After splenectomy and third transfusion—Index = 133 (6 hours after).

After splenectomy and third transfusion—Index = 144 (30 hours after).

After splenectomy and third transfusion—Index = 151 (2 months, much improved).

Case 2. *Pernicious anemia* (patient died).

August 13, 1915, after splenectomy and transfusion—Index=108.

September 16, 1915, after splenectomy and transfusion—Index=102.

Case 3. *Spleno-myelogenous leukemia* (patient died from hemorrhage).

Eighteen hours before first transfusion—Index=102.

Two hours before first transfusion—Index=103.

Fifteen minutes after first transfusion—Index=106.

Eight hours after first transfusion—Index=100.

Thirty minutes after splenectomy—Index=102.

Case 4. *Lymphatic leukemia* (patient died)—Index = 100.

The nuclei were not feathered so seemed to show no tendency toward karyokinesis.

At the German Hospital of Chicago the following were noted:

Lymphatic leukemia; somewhat improved—Index=115.

Spleno-myelogenous; somewhat improved—Index=115.

Pernicious anemia; not improved—Index=109.

Trichinosis (eosinophilia); much improved—Index=125.

Typhoid-pneumonia; died—Index=113.

Terminal nephritis; died—Index=103.

(Ludwig's) angina; died—Index=116.

Pneumococcic empyema; improving, 102-130-153-178.

Hemophylia; died—Index=114.

Eclampsia; recovered, 138-146-159-169.

In the cases of tuberculosis given, the arrested ones include outpatients of artificial pneumothorax, under treatment of Dr. E. A. Gray, many of whom are doing self-supporting work.

The author is indebted to Dr. Ethan A. Gray of the Chicago Fresh Air Hospital, where this count was thoroughly studied over a period of considerable time, and under close observation over a series comprising a large number of cases. Also to Dr. T. B. Sachs for kindness at Edward Sanitarium, Naperville, Ill. Also to Dr. Hubert Dunn, Augustana Hospital, Chicago, as well as to Dr. Weaver of the Durand Hospital, Chicago, at which latter blood was obtained from cases of exanthem diseases. It will require further work in these conditions to establish an index, but it is interesting to note that the same seems quite low during the febrile and early desquamating stages.

It is safe to state that in tuberculosis and the primary anemias the new index is reliable and of distinct value prognostically.

A transition may be expected in many conditions, especially those grouped as anaphylactic in type.

The author thanks Dr. Chas. F. Fischer of Columbus Laboratories, Chicago, for corroborative work along this line.

30 N. Michigan Boulevard.

REPORT OF A SERIES OF CASES OF TRICHINOSIS, WITH REMARKS ON DIAGNOSIS.*

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Ever since 1835, when James Paget discovered the encapsulated worm in the rectus muscle of a body he was dissecting, and a few years later, when Richard Owen accurately described the parasite and gave it its name, *Trichina spiralis*, an ever increasing number of cases of infection with this parasite, either sporadic or epidemic, has been recognized. Epidemics of various degrees of severity have been quite common, and, while there have been many such in the United States, the severe ones have occurred in Germany.

*Read before the Chicago Medical Society, March 1, 1916.

For example, at Hedersleben, a town of two thousand, 337 took sick at one time. More recently at Braunschweig there were 254 cases, and in 1903 in Hamburg 66 cases. C. U. McClure, in 1914, reported 30 cases. While the cases occurring in an epidemic, where the etiology is easily determined, are therefore quite readily diagnosed, the cases occurring sporadically, with no history of having eaten infected meat, or at best an indefinite history, are on that account all the more difficult to determine.

It has been my good fortune to see quite a large proportion of the cases of trichinosis that have entered the County Hospital in the last few years. Incomplete records, errors in filing, and the absence of a well-arranged library until recently, have rendered it impossible to gather together the histories of more than about 29 cases.

There have been three cases occurring in children, all the others in adults, 21 cases ranging from the ages of 18 to 35. The inquiry as to nationality is not particularly enlightening. The majority of County Hospital patients are foreigners, and so, when I say that there were eight Slavs, seven Germans, four Italians and three Americans, and the remainder scattered among other nationalities, the information is not especially illuminating, except in so far as these very people are the ones who eat the greatest amount of pork, and often not thoroughly cooked. Only 13 gave a definite history of having eaten raw or partially cooked meat, either as sausage or in the form of hamburger steak.

A consideration of the various forms of onset is quite interesting and instructive. When we think of trichinosis, we immediately conjure up a history of nausea, vomiting and diarrhea, occurring a few days after the ingestion of tainted meat, followed in a week or so by symptoms of general muscular invasions, muscular pains and more or less prostration.

There were five cases with a history very suggestive of typhoid fever—chilliness, malaise, headache, loss of appetite, slight cough, epistaxis in two cases, and fever. Only six gave the classical history of gastro-intestinal disturbances, such as vomiting or diarrhea with abdominal pains, followed later by muscular pains. This varied in some cases from a few days to about ten days. Five gave a definite history of constipation. In two cases there was abdominal pain of an in-

tensity severe enough to suggest some intra-abdominal condition. In three cases muscle pains were first noticed. Hemoptysis, without subsequent evidences of pulmonary tuberculosis, occurred in two. Quite frequently in this series pneumonia is suggested. This has been the case in five instances, where difficulty in breathing was one of the first symptoms the patients complained of. Edema occurs as a symptom both of the gastrointestinal stage and of the period of invasion. Four patients were first apprised of their ailment by noticing an edema of the eyelids and face, and one, an edema of the ankles, while ten gave a history of having noticed an edema at some stage of their sickness, before coming to the hospital. Two patients noticed pains about the eyes, while eight suffered with severe headache.

Two patients gave a history of sudden onset: One, a boy aged 19 years, with fever, pains in legs, nose bleed, slight cough, high fever, severe headaches, and clouding of the mind. The other, a man aged 24 years, with chilliness, headache, substernal pain, cough and distinct pleural pain.

The time elapsing between the period of intestinal infection and the stage of muscular invasion, or even the stage of ingestion of infected meat and the first gastro-intestinal symptoms varies so much, that an accurate history of the earlier symptoms may be unobtainable. Kratz found 98 patients in whom the first symptoms came on in one to five days after eating infected meat; 76 in six to ten days; 67 in eleven to twenty days; 33 in twenty-one to thirty-three days, and the slowest manifesting themselves as late as forty-two days. Symptoms may occur in a few hours, as mentioned by Kratz, and as found in one case of this series. This was in an American, who gave a very typical history.

The clinical course of trichinosis, when fully developed, presents certain well-marked and well-defined symptoms. The ones with which we are best acquainted are those of muscular invasion—pains in the legs and in the arms. While 13 had pains in both arms and legs, three remembered arm pains and two leg pains, and two abdominal pains. In addition, three were unable to chew their food.

Staubli calls attention to the fact that the greatest intensity of invasion shows itself in the diaphragm, the intercostal muscles, the larynx and the masseters. This involvement varies to

a considerable extent, however, and various groups of cases show a varying degree in intensity in different groups of muscles. That is to say, that while at post mortems trichinae may be found most frequently in the tissues mentioned, the symptoms referable to these may not be so prominent as those in other muscles—as the legs and arms, for example.

The invaded muscles show not only loss of active motion, so that the patient lies prostrate, and unable to move either arms or legs, but even more so, an exquisite tenderness, and at times a peculiar wooden feeling exists. I remember one case particularly, where the muscular infiltration was so pronounced that the impression of a woody phlegmon was given. In this case as many as a dozen trichinae were found, unencapsulated in a piece of muscle sufficiently transparent to be examined with low power and about 2 mm. square. At other times the tenderness is not very severe, and can be elicited only on rather firm pressure.

One group of symptoms—pains in the jaw muscles, the back of the neck and shoulder—may suggest tetanus. Objective symptoms, which are the result of muscular infiltration, and not of an actual involvement of the nervous system, are a Kernig sign and diminished or increased patellar reflex. The diminished reflexes with Kernig furnish a contrasting group of symptoms, which is not characteristic of an organic nervous lesion, and so all the more suggestive of trichinosis.

We shall consider those which are next in frequency and almost a constant accompaniment—febrile disturbances, chilliness or chill, fever, prostration, variable pulse rate and sweats. Prostration was quite pronounced in three cases; chill or chilliness occurred in the majority of them. The pulse temperature curve showed a fairly remarkable constancy. While temperatures of 101 to 102.5 were present in over half the cases, still temperatures of 103 to 105 occurred quite frequently, and in one fatal case, where death resulted from a cortical disturbance, convulsions and hemiplegia, the temperature reached 105.6. But more interesting is the frequency of a low pulse rate with a high temperature. In 13 cases the pulse was slow compared with the temperature. For example, it was not uncommon to find a temperature of 103 with a pulse of 88 or 90. So characteristic did this appear, that a ward

man in one of the wards at the hospital remarked one day when a patient was brought into the hospital with a febrile condition and low pulse rate, that it must be either typhoid or trichinosis. It proved to be the latter.

Staubli calls attention to a slow pulse at onset, becoming more rapid later on. The slow pulse with a diroticity, which has been noted in about five to six cases, renders the differentiation from typhoid fever at times quite difficult. I shall return to this point later. Profuse sweating occurred eight times. It is probable that more cases would give such a history if a more careful inquiry were made as to its presence. Staubli and others have found sweats early in the course. Edema, to which attention has already been called, was found 12 times in the eyelids and once in the ankles. This is the secondary edema, occurring at the time of the invasion. It has been ascribed to a vasomotor disturbance on a toxic basis, where the embryos in the circulation furnish the noxae.

Leaving out of consideration for a moment the laboratory findings, one more objective symptom stands out prominently, and that is splenic enlargement. Schleip found splenic enlargement in 38 out of 46 cases. In this series only 12 times did splenic enlargement occur. This, however, does not include those cases, where splenic enlargement, noted only on percussion, occurs.

The laboratory findings are the most important from a diagnostic point of view, and are for the most part constant accompaniments of the condition. Of these, eosinophilia is not only the most frequent but, with subjective symptoms suggestive of trichinosis, practically pathognomonic. Thayer and Brown, at Johns Hopkins Hospital, were the first to describe eosinophilia in trichinosis. The number vary from normal to 86 per cent., the largest on record, reported by Kerr, of Philadelphia. Every case in this series showed at one time or other an eosinophilia, the lowest 4 per cent., where it had been much higher before, and the highest 56 per cent. In nine cases over 40 per cent. were present. It is a rather striking feature that in the very severe forms of infection, the eosinophile count may be very low, especially so just before death. Thus, in two of the fatal cases, the number of eosinophiles sank from 56 per cent. to 8 per cent. in one, and from 33 per cent. to 4 per cent. in the other. In some of the

severe infections the number may be 8 or 10 per cent. during the height of infection and rise to 38 or 40 per cent. with improvement.

All but five cases had a leucocytosis, ranging from 10,000 to 40,000, the latter being the highest and occurring in a fatal case. Of the five below 10,000, the lowest was 6,400. In all but one case, where the leucocytes were below 11,000 or 12,000 at the outset, the number increased to 15,000 or 20,000 later—a point to which attention has been called by others. This rise in the number of white cells is easily attributable to the absolute increase in the eosinophiles, the neutrophiles being increased only relatively. Anemia of severe grade did not seem to be a common occurrence. In no case, in which the test was made, was either a blood culture or a Widal reaction positive. I call attention to the negative blood culture on account of the tendency to ascribe the severe symptoms of infection to a bacteremia.

The trichinae have been found in the muscle in all but six cases; in the blood in one to four cases examined; and in the spinal fluid in two of six cases examined. All of these latter examinations have been made in the last two months. They have been found in the stool positively in one, and questionably in another case. While the recovery of the larvæ from the spinal canal is a much more striking method for demonstration than from the muscle, still its inconstancy yields first place for diagnostic purposes to the more positive method of excising a small piece of muscle and examining it under low power lens.

The six cases in which trichinae were not demonstrated comprise five in which one or more examinations were negative and one in which no examination was made. Two gave a definite history of eating pork sausage, followed by febrile disturbances, muscle pains, edema, leucocytosis, eosinophilia of 48 and 49 per cent. respectively, with negative Widal and blood culture. The others, though not giving the same history, gave symptoms sufficiently characteristic, with eosinophilia, to render the diagnosis positive.

Febrile albuminurias occurred in almost every case with high temperature. In only five was the diazo reaction made and in all five it was positive.

One more finding, which helped to render the diagnosis difficult at times, was the presence of

hyperemic spots on the abdomen or back. These occurred in five cases.

From what has already been said it can readily be seen that mistakes in diagnosis may be quite frequent. I believe, however, that if one is on the lookout for these cases, more will be found. This has been our experience recently at the County Hospital. Where a routine differential leucocyte count is made, and muscle tissue excised in the presence of tenderness and eosinophilia, a large number of cases will be found.

In five cases the examining room physicians diagnosed trichinosis on the patients' entrance into the hospital. In the others, eight were diagnosed as pneumonia, three as nephritis, nine as typhoid, one as influenza and one as organic heart lesion.

The reason for such mistakes has already been pointed out. Where, with a history of chilliness, malaise, headache, anorexia, epistaxis, abdominal distress, low pulse rate in comparison with high temperature, the former at times dicrotic, suspicious spots, splenic enlargement and positive diazo, the diagnosis of typhoid fever becomes almost imperative unless one makes a careful inquiry as to other symptoms, such as facial edema, and muscle pains, and makes a blood and muscle tissue examination. A leucocytosis and eosinophilia will help to clear the diagnosis. There is less excuse for calling trichinosis, pneumonia. Still, where the majority of fatal cases die of pneumonia—three in four in this series, and 64 in 84 deaths reported by Kratz—the reason for such a diagnosis becomes apparent. The symptoms at the onset, however, may be confusing, such as pain which seems to be pleural in character, referred to the upper abdomen or to the neck, due to the involvement of the intercostal muscles and the diaphragm. Here negative findings in the chest, with the positive ones for trichinosis, will clear the way for correct diagnosis.

Where edema of the face and the ankles occurs and urinary examination shows a small amount of albumen and casts, and, as is found at times, a blood pressure of 150 or more, one might think of nephritis. Temperature elevation, leucocytosis, the absence of a generalized edema and urinary suppression, together with an eosinophilia, will help to rule out nephritis.

I can see only one or two reasons for calling trichinosis, heart trouble—namely, the presence

of a systolic murmur at the apex, which in itself is of no diagnostic value, or the pressure of a pre-existing endocarditis. In six cases of this series there was a systolic murmur, without findings of endocarditis.

One other condition that might lead to confusion in diagnosis is a multiple neuritis. Here, however, a history of alcoholism, intoxication, as lead or arsenic, the sensory disturbances, loss of active motor power, changes in reflexes and electrical reactions on the one hand, with a positive history of eating imperfectly cooked or raw pork, gastro-intestinal disturbance, edema, splenic enlargement, diazo and blood examination, will show whether the patient is suffering from trichinosis or multiple neuritis.

Before closing, I wish to say a few words about the outcome. When I first heard of patients dying of trichinosis, I was rather surprised. That the mortality rate may be quite high is, however, the fact. Death rates of from 5 to 33 per cent. are reported. In the Hedersleben epidemic in 1865, 101 out of 337 infected persons died. In another epidemic 16 per cent. died. Recently at the County Hospital, where father, mother and three children were infected, the father and one child died. In this series of 29 cases, four died, two of pneumonia, one of cardiac failure, one of meningeal involvement. Death may occur anywhere from eleven days to eight weeks after infection. The history of the patient dying of cardiac failure is not complete. It seems that he had been progressing very favorably, when suddenly he developed dyspnea, a rapid pulse, and death ensued. While the trichinae have not been found in the cardiac muscles, still, cardiac muscle changes, as focal necroses, have been described. If such a process involves the bundle of His, death can readily occur.

The patient dying of meningeal involvement is of particular interest. No writer on the subject has described the occurrence of definite brain involvement. Sicard has reported the finding of trichinae in the cerebrum of a patient dying of trichinosis in the Boston City Hospital. This patient, 23 years of age, an Italian, came into the hospital February 13, with a history of having been sick seven weeks. He complained of severe headache, prostration, diarrhea of two or three days' duration, later on edema. Subsequently he

was unable to walk, although he had no distinct subjective pain sensation. Examination showed definite muscle tenderness in the arms and legs, facial edema, eosinophilia of 23 per cent., becoming 4 per cent. before death, leucocytosis of 9,000 to 12,000, and no splenic enlargement. His temperature ranged from 102 to 104, and February 21, the day of his death, 105.6. Pulse from 82 to 96, at times going a little above 100. On the last day it became much more rapid and irregular. Diazo was strongly positive; muscles showed a few trichinae, and spinal fluid none. Nonne and Noguoli were both positive. On the 19th, the patient had a generalized convulsion. Spinal fluid removed at this time was under high tension. On the 20th he was in deep coma, with pupils dilated, and increased patillar reflexes, bilateral Babinski and ankle clonus, and a well marked left-sided hemiparesis. The next day he was in a condition resembling status epilepticus, with almost constant convulsions. The following day he died. The post mortem held the same day was rather disappointing from gross appearance. The only findings of note were cloudy swelling of the kidneys, a bronchopneumonia, and a very marked hyperemia of the meningeal vessels. There seemed to be a more marked congestion of the post half of the right cerebral cortex. Histologic examination has not yet been made.

What has been of especial interest to me in the foregoing study is the frequency of trichinosis, when looked for; the presence of the organisms in the spinal fluid; and what has not been emphasized as strongly as the facts in these cases warrant, the comparatively low pulse rate with a high temperature.

Where a disease may produce symptoms so protean in character, and its prevention is so simple, it would seem that a greater effort to disseminate knowledge of a preventive nature in the case of trichinosis would not be amiss.

ACUTE OTITIS MEDIA.*

R. H. Good, M. D.,
CHICAGO.

The object of this paper is to assist the general practitioner in making an early diagnosis and to outline treatment which will preserve the hearing and avoid chronic suppurating ears and mastoid—

*Read before Aux Plaines Branch Chicago Medical Society, March 24, 1916.

itis, as well as brain complications. I will endeavor to be brief and simply take up the more important points.

Etiology.—One should always bear in mind the fact that any condition or disease which closes the eustachian tube for eight hours or more is almost certain to cause an otitis media. While it is true that we may have a primary inflammation in the tympanic cavity and attic from local pathological conditions, the fact must be borne in mind that nearly all the etiological factors come from the nasopharyngeal end of the eustachian tube. Any disease in the pharynx, nose or throat which causes a congestion or thickening of the mucous membrane in the neighborhood of the eustachian tube will cause a similar condition of the mucous membrane in the tube and thereby cause an obstruction of the tube at its smallest lumen or osseous portion. The diseases which are responsible for this closing of the tube are as follows:

1. Adenoids which are enlarged and frequently inflamed.
2. Acute rhinitis or cold in the head.
3. LaGrippe.
4. Acute infectious diseases, such as measles, scarlet fever, whooping cough and chicken pox.
5. Diphtheria, mumps, erysipelas of nose, throat or face.
6. Hypertrophic rhinitis and atrophic rhinitis with crust formation in the eustachian tube.
7. Any form of tonsillitis which causes a congestion around the tonsil, because the upper part of the tonsil frequently when enlarged lies practically against the tube.
8. Paralysis of the tensor palati muscle from diphtheria, abscesses or tumors, may cause otitis media by inability of the tube to open itself in the act of swallowing.
9. Nasal operations.
10. Nasal douches, diving, etc.
11. Sinusitis of any of the nasal accessory sinuses.

The causes of acute primary infection of the tympanic cavity are:

1. Old chronic pathological condition.
2. Trauma such as a blow on the external ear rupturing the membrane, foreign bodies, cerumen and fracture of the base of the skull.
3. Furunculosis of external auditory canal when entirely obliterating the canal.

4. Tuberculosis, syphilis, measles, scarlet fever and smallpox.

Symptoms.—As we consider the symptoms of acute otitis media it is well to bear in mind that there are three distinct forms of this disease, namely:

1. Tubo tympanic closure, which results first in the absorption of the air in the drum cavity with retraction of membrane and later in accumulation of secretions in the tympanum, without inflammatory reaction.
2. Acute catarrhal otitis media, where the mucous membrane becomes congested and thickened by catarrhal inflammation.
3. Acute suppurative otitis media, where we have a violent inflammation, with suppuration in the drum cavity and rupture of the tympanic membrane.

In the first mentioned form of otitis media there is very little pain, if any. The patient may complain of a crackling sound in the ear and a feeling of fullness with more or less tinnitus and the hearing is somewhat impaired. There is at times a pain in the throat, on the side where the eustachian tube is closed. The membrane at first appears retracted, due to the absorption of the air in the tympanum, but later as the mucus accumulates the drum cavity becomes partly or entirely filled, causing the membrane to bulge slightly. One can frequently observe a hair line across the membrane at the upper level of the secretion in the tympanum, due to the slightly yellowish appearance of the drum membrane against which the secretions lie. This disease usually subsides by the eustachian tube opening up and draining the ear before inflammation sets in.

In the second form, that of catarrhal otitis media we have more severe symptoms. The pain is quite severe, deep-seated, with marked impairment of hearing, and considerable tinnitus. When the infection is limited to the region behind Shrapnell's membrane there is not much impairment of hearing. The temperature may rise a few degrees and the pulse is accelerated. The pain may radiate to the side of the head and to the teeth. Blowing the nose increases the pain. The head noises may be buzzing or pulsating in character. The patient usually speaks in a low voice, because he hears his own voice much louder. There is occasionally a tenderness over the mas-

toid on heavy pressure with the thumb. The pain nearly always comes on at night, due to the fact that when the patient sleeps he does not swallow frequently; and therefore does not open the eustachian tube as often as when up and around. There is also more blood in the membranes in the recumbent position.

The drum membrane is injected along the manubrium and anterior and posterior folds and there is more or less bulging. The landmarks are more or less obliterated. An ordinary watch cannot be heard more than a few inches from the ear. If the membrane ruptures or is incised the discharge is seromucous.

In the suppurative form, the above symptoms are greatly exaggerated. The pain is intense, the temperature may run high, 103 to 105. There is nearly always tenderness in the mastoid on heavy pressure. In children we may find great prostration, vomiting, delirium and mental apathy. The severity of the symptoms depends greatly upon other ailments, which have caused the otitis media, such as scarlet fever, measles, LaGrippe, etc. Examination of the blood reveals an increase in the leucocytes and the polys are increased. Transillumination shows the mastoid slightly darker than the opposite normal mastoid. The x-ray is almost valueless in acute inflammations of the mastoid where necroses and pus formation has not taken place.

The drum membrane before rupture is extremely red and the landmarks are entirely obliterated. There is at times a swelling of the upper posterior portion of the auditory canal so that the entire membrane cannot be seen. A slight exudate may form over the membrane so that there is some difficulty in differentiating between the membrane and the skin. When the membrane ruptures or is incised, there is a discharge of bloody pus. In all these forms of acute otitis media the Rinne test is negative and the Weber test is lateralized to the affected ear and the Schwabach is lengthened in the affected ear, providing there was no internal ear disease previously. The very low fork is not heard. By closing the normal ear with a wet finger the conversation voice is heard with the affected ear at a distance less than fifteen feet.

Differential Diagnosis.—Acute otitis media must be differentiated from myringitis, furuncu-

losis of external auditory canal, acute tonsillitis and quinsy.

In myringitis the hearing is normal, the temperature is normal or nearly so and the eustachian tube is patulous. In furunculosis the hearing is normal if the canal is not entirely closed. Moving or pulling the auricle causes pain, while in otitis media it does not. A swelling can usually be seen in the canal. In tonsillitis the pain is referred to the ear, but on examination the ear is found normal. The same is also found in quinsy.

Prophylactic Treatment.—In all cases of acute rhinitis or in any of the acute infectious diseases or in any inflammatory conditions where the nasal passages are blocked up the physician should use every possible precaution to see to it that the nose is opened at least twice a day to provide good drainage, as by so doing he can be the means of preventing a large percentage of ear complications.

Nasal douches should be religiously avoided in these acute diseases. Small doses of aspirin even if the temperature is not high will often prevent ear troubles, in that it has some tendency to open the nostrils and promote drainage. Heat applied over the nose occasionally and massaging the nose and face will facilitate nasal respiration. The use of a vibrator with a soft sponge over the nose and face and over the mastoid will at times be beneficial in opening the nostrils and draining the ears in these acute inflammatory conditions.

For opening the nostrils once or twice a day, the following preparations will be found very valuable:

Cocaine hydrochloride	gr. iiij
Adrenalin ointment	3j

Sig.—Apply into each nostril a small quantity twice daily with the patient lying on his back.

One-half of 1 per cent. cocaine in adrenalin chloride 1/4000 may be used as a spray twice daily. This is not so easily administered in small children.

Anesthone cream contains synthetic cocaine and adrenalin. It is not toxic and may be used twice daily as a substitute for the above.

One hour after using any of the above preparations it is well to spray the nose with camphor and mentholated albolene, as it tends to keep the nose open a little longer. Care must be taken

in not using cocaine or adrenalin for a longer period than four or five days, as it has a tendency in some patients to irritate the mucous membrane. Vaccines are of some value in diphtheria, acute rhinitis and the infectious diseases in preventing otitis media.

Treatment.—As heretofore stated, earaches usually come on at night, and at the very first indication of pain in the ear the patient should get up and drink water or eat a little in order to make him swallow, as in the act of swallowing the tensor tympani and palati muscle contracts and opens the eustachian tube, thereby promoting drainage. In addition to this the nostrils should be opened with adrenalin and cocaine. One-half hour thereafter the patient should take a mouthful of water and while in the act of swallowing the nose should be held tightly shut, as in this way secretions are sucked out of the ear. The patient should then blow the nose with force and suddenly close the nose in the act of blowing. This will blow air up into the ear. Repeat this a half-dozen times or more in a half hour and then let the patient retire. If this is carried out immediately on the first sign of acute otitis media, you will be amazed to find how many cases you have bridged over without developing otitis media.

I do not believe in the administration of sedatives before the membrane has ruptured, for the same reason that the surgeon does not believe in giving morphin in cases of appendicitis, because it clouds the symptoms.

I am not unmindful of the soothing, and at times curing effects of a 5 per cent. solution of carbolic acid in glycerine, but frequently it clouds the symptoms, so that an ear is allowed to undergo serious pathological changes and rupture before doing an operation on the membrane. If with the above treatment the patient is not relieved in eight to twenty hours, an otologist should be consulted and the drum membrane incised, if there exists an acute otitis media.

I make one plea of the physicians, and that is, learn to make an early diagnosis before the drum membrane ruptures and have the drum cavity opened before serious pathological changes have taken place in the tympanum where the ossicles, facial nerve, oval and round windows are located. By so doing you prevent mastoiditis, brain complication, chronic suppurating ears and deafness.

I believe that the operation of opening a drum

membrane should be performed by a physician who has experience in ear diseases.

1. Because it is an easy matter to injure the chorda tympani.

2. There is danger of severing the joint of the incus and stapes.

3. One can penetrate one of the windows leading to the internal ear and cause absolute deafness.

4. There are instances where the jugular bulb comes high up into the drum cavity with practically no bony covering and may thus be opened.

5. If the malleus or the anterior or posterior folds are seriously injured, the patient will never have normal hearing.

To perform this operation the auricle and the external auditory canal should be thoroughly cleansed and sterilized. Alcohol is probably the most convenient. The incision is made through the portion of the membrane which bulges and one should keep more to the periphery of the membrane.

I do not consider it wise to irrigate an ear before one is certain that the discharge is purulent, for the reason that if we irrigate an ear that is not infected, it will become infected. It is a well-known fact that if a drum membrane becomes perforated from a blow or a gun-shot explosion, it will usually heal without infection if left alone, whereas if it is irrigated it always becomes infected. I learned this from Professor Politzer personally and have never forgotten it.

Sterile cotton or gauze should be placed against the ear and should be removed and replaced in the same manner as one would dress a sterile wound. When the discharge becomes prevalent, this precaution is not necessary.

I am not an advocate of packing the canal with a strip of gauze for the following reasons:

1. In children it is very tedious to do this.

2. You frequently do not know whether you have the gauze against the membrane and consequently liable to leave a pocket between the gauze and the membrane.

3. One is apt to pack the gauze too tight and thereby impede the drainage.

4. It is impracticable to dress the ear more frequently than once in twenty-four hours, so that the entire circumference of the canal is bathed in pus more or less all the time.

I am of the opinion that frequent irrigations in

suppurating ears give the best drainage and keep the ear the cleanest. A twenty-five per cent. solution of argyrol, dropped into the ear after each irrigation, is non-irritating and at the same time a good antiseptic.

After the acute pain and inflammation have subsided the patient may be instructed to blow air through the ear by closing the nose, which may be done two or three times a day; sucking the secretions through the membrane with a suction bulb is also valuable.

Urotropine in the severe cases of suppurative otitis media is of considerable value, although it is difficult to prove this assertion.

Streptococci and staphylococci vaccine are of value to counteract the toxic effects upon the system, but are hopelessly inadequate to cure marked pathological conditions within a bony vault.

When the ear has stopped discharging the patient should be sent to an otologist for final examination to see whether there is any danger of adhesions forming between the drum membrane and the inner wall of the tympanum and to make sure that normal hearing will be restored.

If the tenderness over the mastoid region becomes worse or does not become less in three or four days after incising the membrane a simple mastoid operation should be performed to prevent deafness and further complications.

If the discharge has not stopped in four weeks and is still profuse at this time, a simple mastoid operation should be done to prevent chronic supuration and deafness.

A chronic running ear is like a charge of dynamite in the brain, you cannot tell when it will explode.

I have not mentioned the general care of the patient, such as the bowels, kidneys and elimination in general, as well as the application of cold and heat, etc., as in my experience the physician usually knows more along this line than the otologist.

The complications of an acute otitis media are chronic suppurative otitis media, deafness, facial paralysis, labyrinthitis, mastoiditis, lateral sinus thrombosis, extradural abscess, intradural abscess, meningitis and brain abscess. Let us do our best to avoid these.

PUTTING CONTAGION OUT OF BUSINESS PERMANENTLY.

Here then is the solution, based on human nature, on common sense, and on the most scientific knowledge. Find, through the methods of epidemiology, of the laboratory, and of the vital statistician, skilfully combined by experts, these dangerous persons, whether sick or well—these only dangerous persons, those who carry on them or in them, germs of infectious diseases. Set all others free, but keep these persons, not in old-fashioned quarantine, but under such control that their discharges will not pass to others; and do not measure the length of that control by fixed time limits, blind and unjust as quarantine itself, but measure it wholly by the length of time the germs remain in or on the body. The moment that the germs have left those persons they are no longer harmful and they should be freed.

To do this properly means intimate attention and supervision of infectious persons by men who know their business and do nothing else. If one such man to every 20,000 persons began, tomorrow, everywhere, his work, infectious disease in ten years would have vanished and would have become mere history.

SUMMARY.

This, then, is the conclusion. The old ideas have passed; the new are no longer theories but facts; the methods they require are not untried; they have been practiced for years in many places. The details are worked out, the field is ready the scope and cost are known. All that remains is to apply the methods already developed to all infections, thus wiping them all out, once and for all. The way is clear, what remains is to follow it; the method is known, what remains is to carry it out; the thing we, as a race, for centuries have prayed for, can be done; all that remains is to do it.

Each generation of Americans pays now for infectious disease ten billion dollars at the least, *and has the diseases, too!* Why not pay one-tenth this sum and rid ourselves of all of them forever?—*Hibbert Winslow Hill, The New Public Health.*

LITTLE DAMAGE TO THE ABBOTT LABORATORIES.

A small fire with explosion of gases occurred April 21st on the top floor of one of the buildings of the Abbott Laboratories. Newspaper reports of the extent and character of this accident were grossly exaggerated. The damage was very small, consisting mainly of broken window panes and cracking of temporary partitions. The plant and machinery were injured but slightly, and the entire force went to work the next morning as usual. The Abbott Laboratories have issued a statement positively denying the newspaper reports that this firm is or has been engaged in the manufacture of ammunition or explosives.

In the treatment of nervous cases he is the best physician who is the most ingenious inspirer of hope.

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MAY 1916

Editorials

ALL ABOARD FOR CHAMPAIGN.

We hope every member of the society has made an effort to attend the annual meeting, and we feel sorry for those who can not attend. Can you, as a member, read the program published on another page, and say it does not interest you? The program of any one of the sections should be of sufficient interest to lure you to Champaign on the 16th.

Many of the members think they cannot afford to go. Can you afford to stay away? It is easily noticed that the more successful medical men are the men who attend not only the annual state meeting, but all of the medical conventions to which they can possibly go. Nothing pays them better, either financially or educationally.

Doctor, did you ever make that observation? The solution is not difficult. The American public want doctors who are versed in medical science of today, and it will not employ for its physician the man who cannot find time to attend medical conventions, but will employ those physicians who are abreast with the times, and whom they know to be students. Many of the

new things to be presented at the annual meeting were not even thought of when you were a student, and the layman knows this as well as you. It is not well to let your clientele know that you do not attend the various medical societies, and that you are not in touch with the medical questions which interest other medical men.

Again, can you afford not to attend your State Society Meeting? We think not.

SOME FEATURES OF THE ANNUAL MEETING THAT PROMISE TO BE OF UNUSUAL INTEREST.

The committee of arrangements report that Tuesday evening, May 16, there will be given a "Twilight" concert by the Concert Band of the University of Illinois, under the leadership of Director Harding.

The University Concert Band is made up of about a hundred pieces and is one of the best, if not the very best, of its class west of the Alleghenies. The music rendered will be most enjoyable, and will include both popular and classic selections.

At 4:00 p. m. each day of the meeting the Illinois Brigade will give an exhibition drill on Illinois Field. The University of Illinois Brigade is the largest college military organization in the United States and in more ways than one has become famous.

The manoeuvres of this organization, under the command of Major R. W. Mearns of the regular army, is a sight well worth seeing, and should be missed by no one who attends the meeting.

Wednesday evening, May 17, at the University Auditorium our own ("our-own," but alienist of the State Board of Administration) Dr. Zellar will have charge of a "Picture-Show" of especial interest to the fraternity and the laity alike.

At the opening of the Wednesday evening exercises, Professor Erb, for a short time, will "discourse sweet music" on one of the largest and finest organs in the Middle West, after which Dr. Edmund J. James, president of the University of Illinois, will deliver a short address.

The ladies in attendance will sit down to a luncheon near the noon-hour on Wednesday in the dining hall of the woman's building, Univers-

ity of Illinois. Their general headquarters will be in the parlors of the Beardsley Hotel, where they can meet their friends and assemble for any arrangements that may await them.

MEDICAL LICENSURE.

In the April number we commented upon "The National Board of Medical Examiners" as a voluntary examining board, and as such we are opposed to it.

It is absolutely a fact that the profession wants a different method of Licensure, one that permits the holder of a license to practice medicine where he chooses, within the jurisdiction of the United States. It is equally true that the profession wants a legal licensing body, one that is mandatory, not voluntary, one which must pass upon all practitioners of medicine and surgery, and this implies one with authority.

In forming the union of States certain inalienable rights were recognized and have been adhered to. Protection of the people is a police power, and as such is strictly under the jurisdiction of the state. This means that the licensing of physicians to practice medicine in a given state is the business of that state, and must be done by the designated officers of that state. This function of state government can not be taken over by the national government without an amendment to the national Constitution, and such an amendment, curtailing states' rights, is hardly conceivable at this time.

It would seem then that a national licensure, strictly speaking, in one of the desirable states, is unattainable, but while unattainable, a substitute reciprocity measure, when Medical Education has once been standardized, is not only easily obtained, but stands the test of legal strength. Furthermore, a reciprocity arrangement between the various states will be one of the best of implements with which to advance and standardize Medical Education. When the majority of the state licensing boards wants or agrees to reciprocal licensure, the detail of standardizing the various state examinations will be comparatively simple.

Sooner or later some form of licensure will be brought about which will permit a physician to practice medicine in other states than the one granting the license. When such a condition becomes a reality, the same reciprocal advantage

should be permitted to the older physicians who graduated and were practicing medicine before state examinations were required, but who have been the upbuilders of medical education, and who have caused to be made the various practice enactments.

PETITIONS FOR CANDIDATES FOR THE LEGISLATURE.

Methods of filing petitions for members of the state legislature for either house or senate.

It is necessary to file with the secretary of state a petition bearing the signatures of one-half of one per cent. of the total qualified party vote at last election for governor in the respective senatorial districts. The petition to be filed with the secretary of state not more than sixty days, nor less than forty days before the primary.

Primary day is September 13, 1916; the first day for filing petitions is, therefore, July 15, and the last day is August 4.

THE MILITARY SURGEON.

With the April issue *The Military Surgeon* edited by Col. Edward L. Munson, Medical Corps, U. S. Army, and a large staff of Collaborators, appears in a new form, greatly enlarged and of improved appearance. With the expansion of the Military and Naval forces, and the general interest in "preparedness." *The Military Surgeon* intends to do its share in advancing the service of the medical departments.

This issue gives extensive news items pertaining to the Army and Navy, and in it are also discussed some of the problems of hospitals for the Army.

It is scarcely denied that more medical men should have a military training, and it is almost certain that more medical men will quite soon be required for the Army and Navy service. We hope *The Military Surgeon* will enter its new field in a way to be beneficial to those physicians who are not regularly in the Army or Navy service, but who may be called upon for such service in war emergencies.

ANNUAL MEETING AND ALUMNI DINNERS.

One of the pleasant features of the annual meeting last year was the alumni dinners. Scarcely a man was there whose Alma Mater was not

represented with a gathering. All of these dinners were large and enthusiastic affairs, where the class men of gone-by years again greeted each other and dined together, where the old college songs were sung, where many affairs of the college days were recalled, and stories told at the expense of some of the fellows. No feature of last year's meeting was more enjoyed by all of the doctors in attendance.

At each of these dinners last year a request was made that they be repeated this year. If you do not attend these dinners this year you will miss one of the reunions of class men which you will always regret.

Arrangements are being made for the several reunions on Wednesday, May 17. Unfortunately we have not been informed at what time or place each of these dinners will be given, but notice will be given at the meeting.

REUNION RUSH ALUMNI ASSOCIATION.

A reunion of the Rush Alumni Association will be held at Champaign, Ill., at the coming meeting of the Illinois State Medical Society. Luncheon will be served at the New Inman Hotel, at the noon-hour on Wednesday, the second day of the meeting. Your attention will be directed to this gathering at the time of the state meeting.

P. & S. GRADUATES, THIS WAY!

At Champaign, May 17, during State Society meeting, a rousing get-together banquet. Don't miss it!

Shake the dust of routine out of your hair, old man. Take a fresh shave, a small roll of long green, and beat it—not to Canada, but to Champaign, where other featherless bipeds of the same brand will come by trolley, by steam, by automobile, by Ford, by Heck!

P. & S. men know how to eat, to sing, to talk, and the good "spielers" will be there in force.

This is the time to do that intellectual spring house-cleaning. Sidestep the office hour for a day or two, and give your competitor a chance, poor devil.

Come down and brush up your knowledge of new things in medicine and old friends in fraternity.

Seriously, do not forget that Champaign is the home of our University Mother. This should be a special homecoming occasion, and you will be

surprised and delighted at the number who will be there of those who helped to pass you up.

As this is going to be a record-breaking affair, the committee should have some line upon the number coming.

Kindly send notice by May 10, that you intend to be there, to Dr. C. L. Gulick, Champaign, Illinois.

Faternally yours,

MARTIN M. RITTER,
Chairman Banquet Committee.

Public Health

INJUNCTION AGAINST VACCINATION DISSOLVED.

About the middle of March there being some 90 cases of scarlet fever and 40 cases of smallpox in the city of Peoria, the city council, at the suggestion of the health commissioner, as a measure for the suppression of the outbreaks of these diseases, adopted an ordinance, to be in effect for 60 days from date of passage, prohibiting children under 16 from attending theatres, picture shows and other places of public amusement; excluding unvaccinated children from public and private schools and requiring certificates of vaccination of those admitted; and requiring the disinfection at least once a week of all theatres, picture shows and other places of public amusement and of street cars.

A suit for an injunction was immediately begun in the circuit court by a resident of Peoria, who claimed that his children, who were not vaccinated, would suffer irreparable damage if excluded from the schools. The injunction being denied by the circuit court, an appeal was taken to the supreme court and an injunction was granted by one of the justices in vacation without notice to the city of Peoria.

In April, after hearing arguments by Mr. Radley, Corporation Counsel of Peoria and the Attorney-General on a motion to dissolve the injunction, the motion was allowed and the injunction dissolved.

The action of the Supreme Court in dissolving this injunction is a decided victory for the State Board of Health at whose request the Attorney-General joined in the motion. This decision confirms the contention of the Secretary, Dr. C. St. Clair Drake, that by ordinance cities and villages

may exclude unvaccinated children from the schools when smallpox exists in the community and there is danger of its spread.

ELEVATING EXAMINATION STANDARDS

"FOR OTHER PRACTITIONERS."

After September 1, 1916, all candidates for Other Practitioners' state certificates will be required to take the examination in all subjects in which physicians and surgeons are examined, excepting surgery, obstetrics, materia medica and therapeutics, Other Practitioners being barred by law from engaging in the practice of the branches of medicine covered in the excepted subjects.

Furthermore, candidates for Other Practitioners will be required to write the same subjects and the same questions which are employed in the physicians' examination, and, in addition, they will be graded on a special paper "Education and Training."

This is considered as the most important step yet taken by the Illinois State Board of Health in the elevation of medical licensure examination standards.

On the same date a new schedule of examination goes into effect for midwives, the requirements being more rigid than heretofore.

SANITARY ENGINEERING BUREAU NOW ESTABLISHED IN STATE BOARD OF HEALTH.

A SUMMARY OF ITS AIMS AND PURPOSES.

The last legislature authorized the establishment of a small engineering bureau of the State Board of Health and made a modest appropriation therefor. In order that the work might be gotten under way as early as practicable, temporary appointments were made for the four positions created, namely, a chief sanitary engineer, two assistant engineers, and one stenographer, and temporary offices were established at the University of Illinois.

The temporary chief sanitary engineer served until December first, and returned to the service of the Board March 1, 1916, upon being certified for a permanent appointment by the State Civil Service Commission. One of the temporary appointees, as assistant engineer, has remained with the service throughout, while the other resigned on January 1. The position thus vacated has not been refilled owing to the difficulty of finding a suitable candidate at the salary appropriated.

On March 1, the Bureau moved to Springfield and is occupying temporary offices in the state arsenal until permanent offices and laboratories can be made ready on the sixth floor of the north wing of the state

capitol. Primarily due to delay in securing permanent quarters, the new bureau is not prepared to exercise all of its functions, but nevertheless is actively engaged in carrying on sanitary engineering work of great benefit to the health and welfare of the people of Illinois.

That the general public may become acquainted with the work of the new bureau and avail itself of the services offered, this article will outline briefly the activities with which the Bureau is at present engaged. These activities may be enumerated in the approximate order of their importance as follows:

1. Control over the installation of water supply and sewage systems;
2. Sanitary surveys;
3. Supervision over the sanitation of common carriers;
4. Study of city wastes collection and disposal and street cleaning;
5. Examination of swamp and overflow lands within the state with a view of encouraging their reclamation for both health and profit;
5. Investigation of methods of heating and ventilating with special reference to their applicability to schools, public buildings, and auditoriums;
7. Sanitary inspection of public school buildings;
8. Typhoid fever investigations;
9. Public addresses on sanitary engineering topics;
10. Informal advice by correspondence.

Control over the installation of water supply and sewerage systems.—With the recollection of the terrible cholera epidemic in Hamburg in 1892 which involved approximately 16,000 cases and 8,000 deaths, and which was traceable directly to the pollution of the public water supply, and with the recollection of more recent epidemics and high death rates from typhoid in our own country, also traceable to public water supplies, no argument is necessary to show that control over the quality of public water supplies is of tremendous consequence to the public health. Likewise, the terrible ravages of pestilence that swept through Europe before sewerage systems were in common use in urban communities, is equally convincing proof of the necessity of exercising control over the installation of municipal sewerage systems.

In attacking this branch of the work of the new bureau, it is recognized that results can be obtained very much more readily when water works and sewerage systems are being projected than after they have been constructed. Accordingly the Board has adopted, under the authorization contained in its enabling act, rules and regulations requiring the written approval of the State Board of Health for plans and specifications for proposed installations of water supply and sewerage or proposed modifications and additions to existing water supplies and sewerage systems. For reference, these rules and regulations are inserted at the end of this article.

State control over the installation of public water supplies and sewerage systems is not a new idea and is already in force in all of the larger and more populous states in the country. Already the Bureau

has considered sixteen water supply and sewerage projects and in every instance the Bureau's work has been locally regarded as a service rather than an interference of state authority.

Sanitary Surveys.—Many growing communities have gradually and insidiously developed gross insanitary conditions, especially as these relate to improper sewerage, foul privy vaults, leaching cesspools, polluted private wells, refuse-clogged alleys and back yards and insanitary buildings. That such communities may be aware of the danger which threatens the municipal public health, the board is urging that sanitary surveys be made which are in effect, inventories of the community sanitary status. When the facts are made known, civic pride usually becomes aroused and the public not only demands, but it is willing to pay for better health administration and public improvements.

So many insistent complaints relative to improper sewerage and sewage disposal and relative to public nuisances have come to the State Board of Health that the Bureau has felt impelled to respond by making sanitary surveys of limited scope in fifteen communities in various parts of the state, but unfortunately, the small number of engineers in the department and small appropriations do not permit the engineering bureau on its own initiative and without assistance to make thoroughgoing sanitary surveys which are necessarily laborious and time-consuming. The department is, however, willing to plan and supervise such sanitary surveys whenever a municipality will agree to furnish the necessary assistance. Upon application to the Board, the chief sanitary engineer will visit any municipality for the purpose of making a preliminary inquiry and advising with local authorities or local civic organizations with reference to ways and means for conducting sanitary surveys.

Only one reasonably thorough co-operative sanitary survey has thus far been made, namely, at Petersburg, and this was stimulated by a typhoid fever epidemic. Additional surveys are being planned for Champaign and Urbana, Mattoon and Jacksonville, but have not yet been begun.

Inspections were made by the engineering bureau of several chautauqua and fair grounds, notably the grounds at the Old Salem Chautauqua, where the water supply was responsible for a large outbreak of typhoid fever. The State Board of Health has been impressed as a result of these inspections with the necessity of investigating sanitary conditions of chautauqua grounds, fair grounds, summer resorts and picnic places throughout the entire state. In the nature of the case, it is not practicable to secure local assistance in making these investigations and it will, therefore, be necessary for the engineering bureau to undertake the entire work as rapidly and as thoroughly as its present limited means will permit. This work will be begun within the next few weeks and it is hoped that the sanitary condition of the more important summer resorts and chautauqua grounds can be made known to the public before the next vacation season.

Supervision over the sanitary conditions of common carriers.—Many common carriers, including railroads and steamboat lines, operating within the state have been more or less negligent of sanitary requirements. This applies particularly to railroad construction camps, railroad stations, and toilets and water supplies on cars and steamboats. To correct these conditions so far as the present means of the State Board of Health will permit, a comprehensive survey will be made of the railroad lines and steamboats with a view of establishing rules and regulations governing sanitation of common carriers. The Board has not a sufficient number of inspectors to insure the proper observance of any rules and regulations that may be adopted, and until larger appropriations are available, dependence must be placed on the co-operation of local authorities to secure desired results.

To date, it has been practicable to inspect only a portion of the lines of the Illinois Central Railroad.

Study of city wastes collection and disposal and street cleaning.—The last legislature enacted a law which permits municipalities to raise special funds for the collection and disposal of garbage. This law was passed at the earnest solicitation of many city officials throughout the entire state, who have found the problem of garbage and refuse collection and disposal, or, as it may be more appropriately termed, the problem of municipal house cleaning, a most acute and difficult one to handle. Many municipalities are endeavoring to determine how the funds made available by the new law can be most advantageously used and it would seem eminently appropriate for the State Board of Health to study the problem of city wastes collection and disposal with a view to giving engineers and superintendents of city wastes departments maximum assistance. Three appeals for advice relative to city wastes collection and disposal have been thus far received and reported upon.

Examination of swamp and overflow lands of the state with a view to encouraging their reclamation for both health and profit.—There are over 11,000 acres of unclaimed swamp and overflow land in the State of Illinois which represent not only a great economic loss, but a distinct menace to the health of the state. It is true that yellow fever has been practically exterminated from this section of the country, but malaria has not. This latter disease claims a number of deaths each year, though generally regarded as a mild and non-fatal malady. It is less important to the community because of the deaths that result than because of the industrial inefficiency of the populations infected, for it is estimated that the efficiency of workmen suffering with the disease is reduced from 40 to 90 per cent. To promote the reclamation of swamp and overflow land and to guide the development of such reclamation projects along lines that will allow the maximum sanitary advantage it is the purpose of the engineering bureau to gather and place in its files full information regarding the reclaimable lands in Illinois.

Investigation of methods of heating and ventilating

with special reference to their applicability to schools, public buildings, and auditoriums.—Heating and ventilating, or to use a more expressive and up-to-date phrase, air conditioning, has long been recognized as an important factor in sanitary improvement, yet great difficulty has been encountered in understanding clearly its import and defining its fundamental principles. As the State Board of Health is called upon frequently to inspect school buildings and auditoriums, it will be necessary to give special attention to the subject of air conditioning, through the medium of experimental investigations, so that it may be in a position to give competent advice when called upon to do so. Present funds of the department do not permit of this work being carried out on an extensive scale at once, but a careful study of the subject and the results of experimentation elsewhere place the department in a position to give local health authorities and school supervisors the best present available information.

Sanitary inspection of public-school buildings.—A new law enacted by the last legislature requires the State Board of Health to inspect public school buildings when requested to do so by county superintendents of public instruction. Seven public inspections have already been made and these have been carried out with great thoroughness.

The present outlook would indicate that enough requests for inspections of school buildings will be made to keep the entire engineering department busy on this work alone. Accordingly, some means for curtailing this work at least until greater appropriations can be obtained had to be found. To this end, the chief sanitary engineer is preparing, in co-operation with the office of the state superintendent of public instruction, the office of the state fire marshal and the state architect, standard requirements for schools of various classes. These requirements are being drawn up in sufficient detail to enable local school authorities to make all ordinary inspections, themselves.

Further temporary curtailment of work of this class will be effected through the co-operation of deputy state fire marshals who will combine with their inspections of fire hazards, inspections with reference to certain sanitary phases of school construction and maintenance.

The matter of school sanitation is of such tremendous importance to the welfare of the rising generation that the State Board of Health should have ample funds to maintain its own inspectors and to employ additional engineers for the purpose of examining and reporting upon plans for all proposed school houses before contracts are awarded.

Typhoid fever investigations.—Investigations of typhoid fever have to date taken perhaps the greater part of the time of the engineering bureau. Among the most important of these investigations was that which centered about the Old Salem chautauqua near Petersburg which was definitely traced to polluted water used for drinking purposes at the chautauqua

grounds. More recently, much time has been spent on an investigation of typhoid fever at Champaign and Urbana which quite clearly resulted from infected oysters eaten raw. Other epidemics investigated occurred at Marshall, traceable in part to infected milk; at East Moline, traceable to polluted well water, and at Oak Park, traceable to a typhoid carrier at a high school cafeteria.

Epidemiological work is not normally a function of an engineering bureau, but typhoid fever investigations so often require a knowledge of engineering matters, especially as these relate to public water supply and sewerage, that some of the most important typhoid fever investigations in the country have been carried out primarily by engineers. In the future, epidemiological work will be handled by the state epidemiologist with such assistance from the engineering bureau as may be from time to time required.

Public addresses on sanitary engineering topics.—Very little can be accomplished along sanitary lines in the average Illinois community until the public is well informed as to the nature of any particular undertaking that may be proposed. To assist local authorities in securing public support for such undertakings as the establishment of public water supplies, water purification works, sewerage systems, sewage treatment works, city wastes collection and disposal systems, street cleaning organizations and sanitary school buildings, the State Board of Health will be pleased to have representatives of its engineering bureau visit local communities for the purpose of delivering public addresses. These addresses are usually enhanced in interest by lantern slide illustrations.

Informal advice by correspondence.—The State Board of Health receives numerous letters making inquiry relative to suitable methods for disposing of sewage, protecting private water supplies and securing improvements in sanitary conditions generally. All such communications are carefully considered and fully answered both by letter and by forwarding suitable literature. These inquiries have averaged about 100 per month during the few months that the Bureau has been established.

Summary.—The engineering bureau desires to be of greatest possible assistance in improving the health conditions of the state and invites local authorities and civic organizations to avail themselves of its services. Limited means, of course, prevent the extended activities that such a department should be able to undertake, but it is expected that the department will sufficiently justify its existence to induce the next legislature to very materially increase its appropriations.

RULES RELATING TO PUBLIC WATER SUPPLIES, SEWERAGE SYSTEMS AND ICE SUPPLIES.

Adopted April 5, 1916.

Rule 1: No municipality, district, corporation, company, institution, persons or person, shall install or enter into contract for installing, water works or sewers to serve more than 25 persons until complete

plans and specifications fully describing such water works or sewers have been submitted to and received the written approval of the State Board of Health and thereafter such plans and specifications must be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 2: No municipality, district, corporation, company, institution, persons or person, shall make or enter into contract for making, any additions to or changes or alterations, in any existing water works serving more than 25 persons, when such additions, changes, or alterations involve the source of supply or means for collecting, storing or treating the water, until complete plans and specifications fully describing proposed additions, changes or alterations have been submitted to and received the written approval of the State Board of Health and thereafter such plans and specifications must be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 3: No municipality, district, corporation, company, institution, persons or person, shall make or enter into contract for making, alterations or changes in or additions to any existing sewers or existing sewage treatment works serving more than 25 persons, until complete plans and specifications fully describing such alterations, changes or additions have been submitted to and received the written approval of the State Board of Health, and thereafter such plans and specifications must be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 4: Any municipality, district, corporation, company, institution, persons or person, owning or operating a water purification works or sewage treatment works, shall submit to the State Board of Health monthly records showing clearly the character of effluents produced.

Rule 5: No municipality, district, corporation, company, institution, persons or person, shall offer lots for sale in any sub-division, unless within the boundaries of an area incorporated as a municipality or sanitary district, until plans for sewerage, drainage and water supply have been submitted to and received the written approval of the State Board of Health, and thereafter such plans and specifications shall be substantially adhered to unless deviations are submitted to and receive the written approval of the State Board of Health.

Rule 6: No natural ice shall be furnished or vended to the public for domestic purposes until the source of the ice supply has received the written approval of the State Board of Health, which approval is revocable upon evidence being presented or discovered of undue contamination entering the source.

TUBERCULOSIS NOTES.

Experiments with tuberculin by mouth have been successful in glandular tuberculosis.

In the last decade the death rate from tuberculosis has dropped 25 per cent.

An irritable bladder which persists after regular treatment for cystitis should be examined for tuberculosis.

Some chronic backaches turn out to be tuberculosis of the kidneys.

Apical Predisposition.—The pulmonary apices are firmly grasped by the ossifying first costal cartilages (Freund); their ventilation and circulation is interfered with and a fertile soil for the implantation of the tubercle bacillus has thus been created. Apical Tb. rarely occurs in children because their apices are situated within or underneath the upper thoracic aperture, whereas the apices of the adolescent grow up through the aperture and are being damaged by its anomalies. Senile phthisis runs a more favorable course because the degenerated cartilages give way under the traction of the muscles and thereby permit of a better ventilation and circulation of the apices. Apical Tb. does not occur in animals because all parts of the lung respire uniformly.—*Hart: Betrachtungen ueber die Entstehung der tuberkuloesen Lungenspitzenphthise. Zeit schr. fuer Tb., 1915, Band 24, Heft 2 (transl. from Int. Centralblatt fuer Tb. Forschung).*

Etiological Classification of Symptoms.—The usual stigmata are not necessary for the diagnosis of early Tb. Most patients are suffering from renewed activity in an old focus or from extension to new areas. The attacks which are frequently characterized as grippe, bronchitis, neurasthenia, etc., should, when repeated, lead us to suspect Tb. Some patients do not give a history of previous disease or prodromes. This sudden explosive type of Tb. is usually overlooked.

The early symptoms according to their etiology fall in three groups (1) those caused by toxins; (2) those of reflex origin; and (3) those due to the tbc. process *per se*. Some of the symptoms have a double etiology.

(ad 1) Malaise, run-down feeling, lack of endurance, nervous instability, loss of weight, indigestion, night sweats, and fever. The temperature curve is of great importance for early diagnosis.

(ad 2) Hoarseness, indigestion, loss of weight, pains in chest (particularly in shoulders and upper parts of lungs), tickling in larynx, cough, rapid pulse, flushing of face. The chest pains are more common in old lesions. They usually run in the nerves supplying the shoulder girdle, the interscapular and upper intercostal areas.

(ad 3) Frequent and protracted colds, hemoptysis, pleurisy, fever, sputum. Either of the first two, plus one or more of the symptoms of this group, especially with fever and a positive cutaneous test, allow a positive diagnosis of active Tb.—*Classification of symptoms of early pulmonary Tb. based on their etiology, F. M. Pottenger, St. Paul Med. Jour., Vol. 17, No. 1, 1915.*

Auto Sparks and Kicks

IT WAS A LUCKY THING.



—Courtesy the Chicago Herald.

PRIDE TAKES USEFULNESS OUT OF OLD AUTOS THESE DAYS.

False pride cuts most automobiles down in their prime of usefulness.

The name "used car" has been allowed, in the rushing growth of the industry, to grow into a synonym for something not the best, and the damage has been like that done by a two-edged sword.

In the first place, there isn't a car bought which isn't, in a sense, a "used car." No machine is turned over to the purchaser which has not had its motor run in a thorough test and its other parts all tried out. True, the cars haven't been toured, unless in the case of difficult delivery where the dealer had driven then home from the factory under their own power.

USED—HOW MUCH?

The amount of usage has been lost sight of. And this is the substance of the whole question:

How much usage makes an automobile a "used car?"

When does a "used car" come to deserve the opprobrium which carelessness or indifference has allowed to be attached to the name?

If a prospect likes a car, has half a dozen demonstrations in it, then finds a little defect which, though remedied at once, cancels his desire for the machine, his use of the car doesn't make it a "used car."

The demonstrator used by a dealer isn't a "used

car" except to a personal friend of the dealer, who gets the dealer's commission off the price in charity—a charity which is charitably cloaked in the expression of the dealer to his friend: "It's a used car; you can have it for so much off."

Yet a car purchased outright and used by the owner the same length of time comes back for resale a "used car."

WHEN CAR IS BEST.

The answer to the second question should arrest the attention of those guided by false pride.

A racing car is at its best during its second and third year of hardest usage. An ordinary car is built for 200,000 miles' travel, with the customary 14 per cent. factor of safety. It is a steady driver who puts his car through 20,000 miles a year. It is two and a half years, then, before the car has run through a fourth of its intended usability.

Why, then, should it be termed a bad investment at that stage of its existence? Generally because of \$25 worth of paint.

Under present building practices models will differ in appearance only a little. But paint will wear dull or off, a fender will be bent, or a radiator dented.

While no one questions the fact that the motor of a car used a year or two conservatively is just coming to its prime of usefulness, its best period of smooth, sweet running, yet the missed paint, the dented radiator or bent fender, mark the machine for a "used car" fate.

Appearance, then, is the factor which destroys a car's newness, its appeal to intelligent investment.

How can this be corrected?

Just around the corner off any street crossing automobile row on Michigan boulevard and adjoining almost any garage is a place where the radiator can be repaired and the fender put in perfect condition for a trifling fee.

Half a dozen body-makers in the city and many more body painters will give the car a new appearance. The body builder also will refurbish the upholstery, put in new floor carpets or adjust new seat covers, sandpaper and repaint the steering wheel and adjust the electric wiring; then the car practically is new.

"Why don't persons wanting a car buy a used machine, and have this done?"

GROVER F. SEXTON.

Society Proceedings

Illinois State Medical Society

SIXTY-SIXTH ANNUAL MEETING.

CHAMPAIGN, MAY 16, 17 AND 18, 1916.

ORDER OF PROCEEDINGS.

Registration office in the Exhibit Hall in the basement of the Masonic Temple.

First Day—Tuesday Afternoon.

2:30—Call to order of the Society in General Session by the President, Chas. W. Lillie of E. St. Louis. Parlor of Masonic Temple.

Report of Chairman on Committee on Arrangements, C. B. Johnson, Champaign.

3:00—Call to Order of Secretary's Conference, by Elizabeth Ball, President, of Quincy. Parlor of Masonic Temple.

First Day—Evening.

8:00—Call to Order of the House of Delegates by the President, Chas. W. Lillie. Parlor of Masonic Temple.

Second Day—Wednesday Morning.

9:00—Call to Order of Sections One and Two, for reading and discussion of the papers of the program. Main Lodge Room of Masonic Temple.

Call to Order of the Section on Eye, Ear, Nose and Throat, Joseph Beck of Chicago, Chairman. Parlor of Masonic Temple.

Call to Order of Section on Public Health and Hygiene by M. W. Snell of Litchfield, Chairman. Blue Lodge Room of Masonic Temple.

12:30—Adjournment for Luncheon.

Second Day—Afternoon.

2:00—Call to Order of Society in General Session by the First Vice-President, F. S. O'Hara of Springfield. Main Lodge Room, Masonic Temple.

President's Address, C. W. Lillie of E. St. Louis.

2:30—Reconvening of the Sections.

Oration in Surgery, B. Merrill Ricketts of Cincinnati.

Third Day—Thursday Morning.

9:00—Call to Order of Section One and Two for the Continuation of Program.

11:00—Oration in Medicine, W. B. Bannister, Medical Corps U. S. Army, Chicago.

12:30—Adjournment for Luncheon.

Third Day—Afternoon.

1:30—Reconvening for Continuation and Finishing of Program.

4:00—Call to Order in General Session by the President to Receive the Report of the House of Delegates.

Induction of President-Elect.

5:00—Final Adjournment.

ENTERTAINMENT FOR THE MEMBERS AND LADIES,
ARRANGED BY THE CHAMPAIGN COUNTY
MEDICAL SOCIETY.

Tuesday, May 16.

6:30 p.m.—Twilight Band Concert, South Campus, University of Illinois, A. A. Harding, Director.

Wednesday, May 17.

1:00—Luncheon for Ladies, Woman's Building, University of Illinois.

7:00—Organ Recital at Auditorium, University of Illinois.

8:00—Moving Pictures of Illinois as Exhibited at the Panama Exposition. Address by President Edmund J. James, under Supervision of George A. Zeller, M. D., Board of Administration, at Auditorium.

Thursday, May 18.

2:00—Official Visit to University of Illinois.

Regimental Drill each day at 4:00 p. m.

OFFICIAL PROGRAM.

SECTION ONE.

E. J. Brown, Chairman.....Deatur
H. W. Cheney, Secretary.....Chicago

SECTION TWO.

G. W. Green, Chairman.....Chicago
Don Deal, Secretary.....Springfield

Wednesday, May 17, 9:00 A. M.

Chronic Appendicitis from the Standpoint of the
Internist.....J. G. Friedman, Chicago
Discussion—Alfred C. Croftan, Chicago.

Appendicitis from the Standpoint of the Ordinary Surgeon.....Clark A. Buswell, Chicago
Discussion—E. H. Oschner, Chicago.
Dan. Eisendrath, Chicago.

The Influence of Mixed and Secondary Infections in Pulmonary Tuberculosis in Man.....
.....Roswell T. Pettit, Ottawa
Discussion—O. W. McMichael, Chicago

Management of Empyema in Children.....
.....A. M. Miller, Danville
Discussion—Frederick Dyas, Chicago;
Wm. R. Parkes, Evanston.

Malignant Endocarditis.....
.....Albert H. Baugher, Chicago
Discussion—Chas. H. Lovewell, Chicago;
C. Martin Wood, Decatur.

Surgery from the Patient's Viewpoint.....
.....Clifford U. Collins, Peoria
Discussion—Carl Black, Jacksonville;
O. Theodore Roberg, Chicago

The Clinical Significance of Vicarious Gastrorrhagia
....Frank Smithies and Robt. Bowen, Chicago
Discussion—Milton H. Mack, Chicago.

Wednesday, 2:00 P. M.

President's Address.....
.....Charles W. Lillie, East St. Louis

Oration in Surgery. Anesthesia from the Dawn and Its Relation to Surgery.....
.....B. Merrill Ricketts, Cincinnati, Ohio

X-Ray Interpretation
.....Fred Suma O'Hara, Springfield
Discussion—Frank Smithies, Chicago;
Edward S. Blaine, Oak Park

Value of X-Ray in Differential Diagnosis in Gall Bladder Lesions.....
.....James T. Case, Battle Creek, Mich.
Discussion—A. W. George, Boston, Mass.;
Walter Bain, Springfield.

Survey of Opinions and Experience in First Aid....Joseph C. Bloodgood, Baltimore, Md.
Discussion—S. C. Plummer, Chicago;
H. C. Mitchell, Carbondale.

Medical Legislation, Recent and Contemplated
.....C. St. Clair Drake, Springfield
Discussion—L. C. Taylor, Springfield.

Surgery of the Colon....A. J. Oschner, Chicago
Discussion—E. Willys Andrews, Chicago;
Karl F. Snyder, Freeport.

Thursday, May 18, 9:00 A. M.

Mechanical Kinks of the Back.....
.....P. B. Magnuson, Chicago
Discussion—Don Deal, Springfield;
Edwin W. Ryerson, Chicago.

Importance of Infections Originating in the Post-Nasal Space in Infants and Children.
Report of Cases....George E. Baxter, Chicago
Discussion—Chas. B. Younger, Chicago.

Symposium. (A) Splenectomy in Pernicious Anemia.....P. M. Parrish, Decatur
Symposium. (B) Splenectomy in Peculiar Types of Splenomegaly.

Allen B. Kanavel, Chicago.
Discussion—A. S. Wall, Champaign;
M. L. Goodkind, Chicago.

Oration in Medicine. The Medical Mechanism for War in the United States.....
Col. W. B. Bannister, Medical Corps, United States Army, Chicago.

Efficiency in Medical Practice.....
.....Cecil M. Jack, Decatur
A Clinical Study of Pneumonia, with Special Reference to Prognosis..Frederick Tice and
R. F. Herndon, Chicago.

Discussion—George Parker, Peoria.
Edward F. Wells, Chicago
Traumatic Hernia....C. W. Hopkins, Chicago
Discussion—W. H. Bohart, Chicago;
Otis O. Stanley, Urbana.

Radium Therapy. Remarks on the Use of Radium in Deep Seated Malignant Disease and in Dermatology. (Illustrated with lantern slides)Frank E. Simpson, Chicago
Discussion—Arthur W. Stillians, Chicago.

Fascia Transplantation..Dean D. Lewis, Chicago
Discussion—John B. Murphy, Chicago;
Robert Noble, Bloomington.

The Preparation and Use of Vaccines in Chronic Bacterial Infections.....
.....Adolph Gehrmann, Chicago
Discussion—A. H. Baugher, Chicago.

Military Preparedness from a Surgical Standpoint. My Experience as Post Surgeon at Camp Tanner During the Spanish-American WarGeo. N. Kreider, Springfield
Discussion—Jacob Frank, Chicago;
A. J. Butner, Harrisburg.

Therapeutic Starvation in Infancy.....
.....Joseph Brennemann, Chicago
Discussion—Clifford G. Grulee, Chicago.

- Angina Pectoris, with Report of Cases.....
S. E. Munson, Springfield
- The Treatment of Paresis by Intraventricular
 Injections.....C. F. Read, Peoria
- Discussion—William G. Stearns, Chicago;
 Ralph C. Hamill, Chicago.

SECTION ON PUBLIC HEALTH AND HYGIENE.

- M. W. Snell, Chairman.....Litchfield
- Gustav F. Ruediger, Secretary.....La Salle

Wednesday, May 17, 9:00 A. M.

- The Health Department Under the Commis-
 sion Form of Government.....
F. C. Vandervort, Bloomington
- The Importance of Germ Carriers in the Pro-
 pagation of Diphtheria.....
G. F. Ruediger, La Salle
- The Classification of Medical Colleges and Its
 Effects on Medical Education and the Medi-
 cal Profession in America.....
Benj. H. Breakstone, Chicago
- An Epidemic of Typhoid Fever Due to the Use
 of a Polluted Water Supply at Old Salem
 Chautauqua.....Harry F. Ferguson,
 Assistant Engineer, State Board of Health
- Raw Oysters as Carriers of Typhoid Fever....
 Professor Paul Hanson, Chief Engineer,
 State Board of Health
- Symposium on Child Welfare.

- (A) Duty of the State to the Growing Child
Charles J. Whalen, Chicago
- (B) Natural Feeding of Infants.....
J. W. Van Derslice, Oak Park
- (C) Use of Clean, Raw Cow's Milk in the
 Feeding of Infants.....
Grace H. Campbell, Chicago
- (D) Weaning and Subsequent Feeding....
J. C. Kraft, Chicago

- The Handkerchief as a Sanitary Appliance...
Adolph Gehrmann, Chicago
- Convalescent Hospitals. Their Economic
 Value.....John A. Robison, Chicago
- Sanitary Legislation, Recent and Contem-
 plated.....C. St. Clair Drake, Springfield
- The County Tuberculosis Sanitarium and Its
 Effects on the Community.....
George T. Palmer, Springfield
- Results With Artificial Pneumothorax After
 Four Years' Use of the Method.....
L. S. Peters, Albuquerque, N. M.

ILLINOIS STATE MEDICAL SOCIETY.

EYE, EAR, NOSE AND THROAT SECTION.

CHAMPAIGN, MAY 16, 17 AND 18, 1916.

The Section Program will be exceedingly in-
 teresting, both from a scientific and social stand-
 point. Tuesday, May 16, the entire day—from
 10 a. m. to 5 p. m.—will be devoted to Clinics
 and Demonstrations at the Burnham Hospital.
 Both operators and operations will be selected
 with the idea in mind of providing an authorita-
 tive demonstration of operations which are of
 particular interest to the members of the section.
 Tuesday evening, May 16, the section banquet
 will be held at the Beardsley Hotel at 7 p. m.
 This promises to be an exceedingly attractive
 event. A number of speakers will be on the
 program, and in addition some special features
 of entertainment will be provided. Wednesday,
 May 17, the entire day beginning at 9:30
 a. m., will be devoted to the reading of
 papers. The place of meeting is the Masonic
 Temple. The list of papers provided is exceed-
 ingly attractive, and will prove of great interest.
 During the meeting days special entertainments
 will be provided by the local committee. The
 members of the section are earnestly urged to at-
 tend both the clinic on Tuesday, May 16, and
 the section work on Wednesday, May 17, and
 thereby contribute to the success of the meeting.

PROGRAM.

EYE, EAR, NOSE AND THROAT SECTION.

1. Two Years' Clinical Experience on the
 Trachoma Question in Southern Illinois..
Edward E. Edmondson, Mt. Vernon, Ill.
 Discussion opened by Oliver Tydings,
 Chicago
2. Experimental Reproduction of Accessory
 Sinus Suppuration for Teaching Pur-
 poses....M. F. Arbuckle, East St. Louis, Ill.
 Discussion opened by Albert H. Andrews,
 Chicago
3. The Capsule of the Faucial Tonsil, Its
 Structure and Significance.....
Elmer L. Kenyon, Chicago
 Discussion opened by Chas. H. Spears,
 Champaign, Ill.
4. Corneal Uleers and Their Treatment....
Wesley Hamilton Peck, Chicago
 Discussion opened by J. Sheldon Clark,
 Freeport, Ill.

5. The Ear in Diabetes; With Special Reference to the Inner Ear (from the Ear Department of the Vienna Polyclinic).....
.....Thomas O. Edgar, Dixon, Ill.
Discussion opened by G. H. Mundt,
Chicago
6. Circular Plastic Operation for Cicatricial Ectropion, a New Operation.....
.....E. F. Snyder, Chicago
Discussion opened by N. Remmen, Chicago
7. The Diagnosis of Disorders Affecting the Perceptive Organs of Hearing.....
.....Otto J. Stein, Chicago
Discussion opened by J. Holinger, Chicago
8. Symposium on Penetrating Injuries of the Eye-Ball:
 - (a) Diagnosis..Casey A. Wood, Chicago
Discussion opened by William E. GambleChicago
 - (b) X-ray, Value of in Localization of Foreign Bodies in Eye-ball: with Demonstration and Stereopticon Slides.....Hal P. Wells, Chicago
Discussion opened by
Charles C. Clement, Chicago
 - (c) Treatment...Harry W. Woodruff,
.....Joliet Ill.
Discussion opened by M. H. Lebensohn Chicago
 - (d) Pathology of Infections Complicating; Exhibition of Specimens and Stereopticon Slides.....
.....Francis Lane, Chicago
Discussion opened by Robert Blue,
Chicago
9. The Tonsil in Its Relation to a Series of Infection Sequences.....
.....Frank Buckmaster, Effingham, Ill.
Discussion opened by
Charles F. Burkhardt, Effingham, Ill.
10. Tydings' Submucous Operation; An Improved Technique...Oliver Tydings, Chicago
Discussion opened by J. Z. Bergeron,
Chicago
11. Prognosis and Treatment of the Common Intra-Cranial Lesions Complicating Nose, Throat and Ear Infections.....
.....Norvall H. Pierce, Chicago
Discussion opened by Frank Allport,
Chicago
12. Discussion of the Value of the Radiograph in the Diagnosis of Mastoid Disease.....
.....George E. Shambaugh, Chicago
Discussion opened by H. J. Pollock,
Chicago
13. Diagnostic and Prognostic Value of Visual Fields; With Some Suggestions in Technique.....George F. Suker, Chicago
Discussion opened by Harry S. Gradle,
Chicago
14. Comparative Value of Direct and Indirect Laryngoscopy and Bronchoscopy.....
.....Stanton Friedberg, Chicago
Discussion opened by C. W. Boot, Chicago
15. Horsehair Suture for the Relief of Tension in Glaucoma.....
.....J. Whitefield Smith, Bloomington, Ill.
Discussion opened by Cassius M. Craig,
Champaign, Ill.
16. Common Focal Centres of Metastatic Infections in the Upper Respiratory Tract..
.....W. J. Rideout, Freeport, Ill.
Discussion opened by J. J. Grant,
Freeport, Ill.
17. Post Nasal Cauterization in the Treatment of Chronic Constriction of the Eustachian Tubes, with Reports of Cases.....
.....Alexander S. Rochester, Chicago
Discussion opened by Frank Brawley,
Chicago
18. Review of the Principal Operative Measures Advocated for the Removal of the Falcial Tonsil..A. B. Middleton, Pontiac, Ill.
Discussion opened by
Edward F. Garraghan, Chicago
19. The Value of Diagnosis in the Treatment of Nasal Conditions....C. H. Long, Chicago
Discussion opened by Otto Freer, Chicago
20. The Detection of Malingerers of Deafness, with Demonstrations of Instrument.....
.....Carl B. Wagner, Chicago
Discussion opened by J. W. Dunn,
Cairo, Ill.
21. The Examination of the Discharge in Purulent Otitis Media.....
.....Albert H. Andrews, Chicago
Discussion opened by
John A. Cavanaugh, Chicago

SECRETARIES' CONFERENCE.

Elizabeth Ball, President.....Quincy
H. B. Henkel, Vice-President.....Springfield
Flint Bondurant, Secretary.....Cairo

*Tuesday, May 16, 3 P. M., Parlor of
Masonic Temple.*

Co-operation of the County Medical Society
with the State Board of Health for the Good
of the Commonwealth.....
.....C. St. Clair Drake, Springfield
Printer's Ink in Organization.....
.....Thomas P. Foley, Chicago
A Valuable Aid in Our Work.....
.....E. W. Fiegenbaum, Edwardsville
Publicity.....A. M. Corwin, Chicago
How to Promote the Interest and Attendance
in Our Country Societies.....
.....Andy Hall, Mt. Vernon

EXHIBITORS.

Horlick's Malted Milk.
William Meyer Co., X-ray.
D. Appleton Co., Books.
R. & E. Manufacturing Co.
Sharp & Smith, Surgical Instruments and
Supplies.
Macalaster, Wiggin Co., X-ray Tubes.
Mellins Food Co.
Scheidel-Western X-ray Co.
Childs Drug Co.
W. D. Allison Co., Office Furniture.
W. C. Abbott Co., Drugs.
Standard Oil Co.
Phillips Chemical Co.
North Shore Health Resort.
Chas. A. Schmidt, Surgical Instruments.
Reed & Carnrick.
Lederle Antitoxin Co.
W. B. Saunders Co., Books
Central City Chemical Co.
Radium Chemical Co.
John McIntosh Co., X-ray.
Mudlavia.

COOK COUNTY

Chicago Medical Society

Regular Meeting, April 5, 1916.

PUBLIC WELFARE MEETING.

SYMPOSIUM ON CAPITAL PUNISHMENT.

Dr. J. C. Krafft, Chairman of Committee on Crimi-
nal Punishment, Chicago Medical Society.

Judge A. C. Barnes, formerly First Assistant State's
Attorney, Cook County, Illinois.

Jno. L. Whitman, Superintendent of Bridewell.

Charles Peters, Deputy Sheriff, Cook County, Illi-
nois.

Neils Juul, State Senator, Illinois.

Dr. Paul E. Bowers, Physician to Indiana State
Prison, Michigan City, Indiana.

Regular Meeting, April 12, 1916.

1. "Menierre's Disease," Oliver Tydings. Discus-
sion—Norval Pierce, W. G. Reeder.
2. "Typhoid Perforation," I. H. Eddy. Discus-
sion—A. J. Ochsner, Coleman Buford, Frederick Tice.
3. "Diagnosis and Elimination of Chronic Focal
Infections Associated with Teeth," Wm. H. G. Logan.
Discussion—Hugh McKenna, Ed. L. Cornell.

Regular Meeting, April 19, 1916.

1. "The Criminal Boy. Some Observations Based
on the Study of 112 Cases," Wm. O. Krohn. Discus-
sion—John L. Whitman, Superintendent House of Cor-
rection; Hon. William N. Gemmill, Judge of Municipal
Court of Chicago.
2. "The Relief of Chronic Obstructive Jaundice by
Palliative Operations," John F. Erdmann, New York,
N. Y. Discussion—A. J. Ochsner, Emil Ries.

Regular Meeting, April 26, 1916.

1. "Results of Further Studies in Haemoglobin,"
Charles Spencer Williamson.
2. "Recurrence of Symptoms After Operation for
Gallstone Disease," John B. Deaver, Philadelphia, Pa.
Discussion general.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of Dec. 20, 1915, Continued.

Dr. William A. Fisher reported three cases on
which he had operated for cataract by the intra-
capsular method, in order to let the members
observe the condition of the eyes after the opera-
tion and note the visual results.

These patients were operated upon October 7
before the members of the Academy of Ophthal-
mology and Otolaryngology at their annual meet-
ing. An iridectomy was made at the time of
the operation in each case, without introducing
the iris forceps into the anterior chamber—the
Smith method. The three extractions were per-
formed without accident or complication. There
was no pain or postoperative inflammation in any
of them, and the bandages were not disturbed
for nine days. At the end of the ninth day the
bandages were removed, the anterior chambers
were reformed, the corneal wounds were closed,
there was no iris prolapse in either of them, and
the only treatment they received after the ban-
dages were omitted was to keep the eyes clean
and wear smoked glasses. They all counted fin-
gers at about five feet when the bandages were
removed. Their total time in the hospital after
operation was 58 days, an average of 19 days.

The histories of these three cases are as follows:

Case 1. Mr. D., aged 74. Mature cataract right eye. Referred by his brother, Dr. Davey, Chicago. October 7, intracapsular operation; left hospital October 21 with vision 20/30 with pinhole. Referred him to Dr. Pendleton, Quincy, Ill., where he lives, to be refracted. A letter from Dr. Pendleton, November 25, 1915, says that Mr. D. has vision 20/20 with plus 10.00, and that the ophthalmometer does not show any astigmatism.

Case 2. Mrs. E., aged 70. Mature cataract. Referred by Dr. Mundt, Chicago. October 7, intracapsular cataract operation; patient left hospital October 29, 1915. December 20, 1915, her vision is 20/20 with plus 11.00 combined with plus 2.00 ax 30.

He was unable to present this patient to the Society on account of her age, and because the Society meets at night.

Case 3. This patient was presented for inspection. Miss W., aged 55. Mature cataract of right eye. Referred by Dr. Tydings, Chicago. October 7, intracapsular cataract operation; patient left hospital October 29. December 20, 1915, her vision with plus 10.00 is 20/20.

REPIGMENTATION OF AN INFLAMMATORY DEPIGMENTED IRIS.

Dr. Harry S. Gradle reported the case of a patient, 45 years old, who had his first attack of iritis in the left eye in 1907. Five years later a second attack occurred. In October, 1915, patient suffered a third attack, during the course of which the left iris became depigmented, changing from its former brown to a perfect blue color. The inflammation subsided rapidly after exenteration of his hyperplastic ethmoids, leaving a blue iris with incomplete posterior annular synechiae. Within three weeks after the inflammation disappeared, brown pigment granules, identified under the corneal microscope as chromatophores, began to make their appearance at the periphery of the iris, eventually forming a solid brown ring around an otherwise blue iris. This ring is gradually advancing toward the pupillary edge, while the remaining iris stroma is studded with individual chromatophores.

PAUL GUILFORD, Secretary.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held December 21, 1915.

The President, Dr. George W. Boot, in the Chair.

CASE OF ATROPHIC RHINITIS FOLLOWING REMOVAL OF TURBINATES.

DR. GEORGE W. BOOT showed a patient who had had extensive removal of the turbinates. He wished the Society to take some action looking to the preventing of physicians doing such mutilating operations, with their resulting crusting.

DISCUSSION.

Dr. Joseph C. Beck asked the speaker if he claimed an atrophic rhinitis in consequence of that operation, to which Dr. Root replied in the affirmative—an operative atrophic rhinitis.

Dr. Joseph C. Beck is of the opinion that atrophic rhinitis does not result from the removal of the inferior turbinates.

Dr. A. H. Andrews thought it would be interesting to know the condition of the nose before the operation. If there was atrophic rhinitis soon after the removal of the inferior turbinates, he would be inclined to think that the process had existed before their removal. He does not believe in the indiscriminate removal of the inferior turbinates. Such practice should be severely condemned. With Dr. Beck, he questioned whether real atrophic rhinitis is ever caused by increased lumen of the nostril. It requires other etiological factors to produce the pathology.

Dr. J. Holinger did not think the diagnosis of atrophic rhinitis should be made unless syphilis and suppuration of some of the nasal cavities were excluded.

Dr. Boot said he did not mean to give the impression that he thought the pathological changes of atrophic rhinitis were present in the case. However, it was a case where there was a very marked condition in the nose, as the result of the operation, and the man has some of the clinical signs of atrophic rhinitis. He did not mean to say that it was an atrophic rhinitis from a pathological standpoint. In his opinion, the case certainly does not resemble a case of syphilitic ozena.

SYPHILITIC STRICTURE OF LARYNX.

Dr. Boot then exhibited a specimen of stricture of the larynx, due to syphilis, in which there was ulceration between the esophagus and trachea from long wearing of a tracheotomy tube and carcinoma of the accompanying thyroid gland. The arytenoid cartilages were destroyed by the ulceration causing the stricture. Anything the patient attempted to swallow would appear in the tracheotomy tube. A gastrotomy was done, in order to feed him, but he did not survive this operation.

CARCINOMA OF THE MANDIBLE; EXHIBITION OF SPECIMEN.

Dr. L. W. Dean, Iowa City, Iowa, exhibited a specimen of squamous-celled carcinoma of the mandible, without any ulceration of the mucous membrane of the tongue, floor of the mouth, or lips. An epithelioma of the lip had been removed about one year before. This condition was operated on by the method devised by Dr. Prentiss for the removal of half the mandible without interfering with any of the branches of the facial or producing any deformity about the mouth.

GIANT-CELLED SARCOMA OF JAW.

Dr. Dean also showed a specimen of a giant-celled sarcoma of the jaw, section of which showed how the growth did not involve the bone. The speaker's conception of tumors of the mandible is that the so-called giant-celled sarcoma is the only sarcoma where we are justified in not removing one-half of the mandible. The only other malignant tumor where we are justified in not removing one-half is an epithelioma involving the alveolar process.

DISCUSSION.

Dr. Boot asked Dr. Dean what he did to control hemorrhage in the first case reported, to which Dr. Dean replied that

there was practically no hemorrhage, and what hemorrhage there was could be controlled easily by the use of the hemostat.

Dr. Joseph C. Beck asked if there was any x-ray picture taken.

Dr. Dean replied that there was, and it was very suggestive of a cyst of the mandible.

Dr. Beck asked if the x-rays had been used therapeutically, to which Dr. Dean replied in the negative.

PATHOLOGICAL AFFECTIONS OF THE CAVERNOUS SINUS.

Dr. Henry G. Langworthy of Dubuque, Iowa, said that with a brief résumé of the anatomy of the subject which links together the study of such fields as the cranial nerves, pituitary body, sphenoidal cavity, orbits and cranial cavity itself, one is a little better prepared to consider the pathological affections which might affect such an important structure or region. The author mailed 284 letters to members of the American Surgical and Western Surgical Associations, to which he received 120 responses, but of this number only 44 were able to cite cases either directly or indirectly concerning the sinus. The classification of affection from the replies received was as follows: 1. Septic thrombosis; 2. gun-shot wounds; 3. involvement from fracture of the skull; 4. arteriovenous aneurysm; 5. injury during miscellaneous operations; 6. involvement by malignant growths, and 7. congenital affections. To this, from the literature gone over, must be added 8, marasmic or so-called aseptic thrombosis, and 9. intermittent exophthalmos, both of which are rare conditions.

1. In the answers to the question-letters, 29 cases of septic thrombosis were reported, with recovery in 3 cases, or 9.6 per cent. Of these cases of recovery, one from the ear recovered through energetic and thorough aural surgical treatment alone; one, a neck infection, recovered through local neck drainage, and one complicating an ethmoid operation with syphilis got well on expectant medical treatment. A direct operation was not attempted by any one of the 21 surgeons upon whose data this report is made.

2. Eight cases of gun-shot wounds were reported by letters, in which the sinus had been penetrated and otherwise badly injured. Six cases died and two recovered.

3. Fracture at the base of the skull, with moderate laceration or complete rupture of the sinus, was reported in 6 cases. Two cases recovered, one by tamponing the sinus, the other by expectant treatment, with, however, the final loss of the eye itself.

4. Fifteen cases of rupture of the carotid interior artery in the cavernous sinus, producing arteriovenous aneurysm with pulsating exophthalmos, for which ligation of the common carotid or internal carotid was performed, were reported. Improvement or full recovery ensued in 12; death in 3 cases.

5. Three cases in which the cavernous sinus was quite badly injured, two during a Gasserian ganglion operation, with good recovery, and one during an hypophysis operation, with death from intracranial hemorrhage.

6. Two cases of sarcoma with death were reported.

In the literature, Knapp has reported a case of orbital sarcoma, followed by aseptic thrombosis of the cavernous sinus, with successful sinus operation, in which the patient lingered for over two months. Macewen also mentions a case of septic thrombosis and death from carcinomatous involvement.

7. One congenital growth (fibrocystic) was reported by Veer, in which the zygoma and malar bones were resected, in order to reach the area, and many vessels surrounding the cavernous ligated. The patient made a good recovery.

8. No cases of purely marasmic thrombosis were reported in the answers to the question-letters. A few instances are on record in literature, however, occurring during the course of debilitating or marasmic diseases.

9. Intermittent exophthalmos is a most interesting condition, new to most men, and its exact relationship to the cavernous sinus a little unsettled. No cases of this affection were mentioned in the question-letter. True intermittent exophthalmos is a rare condition, and must not be confused with pulsating exophthalmos, which latter is due to rupture of the internal carotid artery in the cavernous sinus.

DISCUSSION.

Dr. L. W. Dean, Iowa City, Iowa, said he had had three experiences in connection with disease of the cavernous sinuses. In the first case there was no exophthalmos. There was optic neuritis on the right side, but the patient had a very bad chronic suppuration of the sphenoid. Nothing else found. Within two days, however, he had a marked exophthalmos and died about four days after first coming under the speaker's observation. When first seen he was a walking case, with a septic temperature, chills and fever up to 105 degrees, then dropping to normal. Post mortem showed a typical phlebitis of the cavernous sinus, with suppuration of the mastoid. There was a necrotic area of the wall, a dehiscence of the inner wall of the sphenoid, and over this dehiscence there was a necrotic area of the cavernous sinus, with the septic clot. This case was of special interest to the speaker, because there was positively no trace of exophthalmos or edema of the nerve-head when the patient was first seen. The second case was one of arteriovenous aneurysm—also seen by Dr. de Schweinitz and the diagnosis confirmed by him. Two years ago the speaker ligated the common carotid in that patient, with a fine result. This was a traumatic case, with the pulsating exophthalmos accompanied by terrific pain. By "fine result" he meant that it was fine so far as the pain and slight diminution in size of the tumor were concerned. This patient now has a beautiful collateral circulation. Dr. Prentiss had gone over this patient, and come to the conclusion that the collateral circulation was mostly through the vertebrals. The third case was one that was reported before the Society, and occurred following tonsillectomy many years ago. The patient had a septic temperature coming on after exposure. When seen by Dr. Dean he had a temperature of 105 degrees. He had exophthalmos on the right side. Optic neuritis also present on left side. This man recovered without a doctor, came to Chicago afterwards and had the right eye enucleated. Dr. Dean had always thought the case was one of cavernous sinus phlebitis which recovered, but has had no definite way of knowing whether it was that or a sepsis of the orbit.

Dr. Joseph C. Beck thought the question of intermittent exophthalmos was interesting. Very recently he had had a case of intermittent exophthalmos in which he was preparing to do an exploratory operation on the orbit for a possible tumor within the orbit. There was, however, nothing definite to show this condition. The condition had no effect on the vision, but it was stated by the physician in charge that every time the patient became excited, nervous and tired she got an exophthalmos. While being put under the anesthetic

Dr. Beck looked at the patient's face and saw the disproportion of the two eyes. He examined the eye; felt above the inner canthus, and deep in the orbit he felt a mass—something like a rubber ball. He decided that there probably was a tumor, maybe an angiona, within the orbit, and on the nasal side. Nasal examination was always negative. X-ray examination did not give any hint as to the condition. Incision, as would probably be made for a Killian, only further inwards in the orbit. As soon as he came on to this mass, a slight opening was made, and a real gush of pus went all over the patient's face. Further exploration showed that the entire ethmoid had been destroyed. The orbital periosteum was intact, but thickened. It was a case of infected cyst of the ethmoid, both anterior and posterior. There was nothing unusual in the case, except the intermittent exophthalmos. He wished to call attention to the fact that one might have suspected a cavernous sinus condition in this case. Bacteriologic examination of the pus showed the streptococcus. The patient made an uneventful recovery.

In regard to the point made of injuring the cavernous sinus in a Gasserian ganglion operation, Dr. Beck had operated on one such case, and in severing the posterior root he could see very clearly the cavernous sinus, and how easily it might be injured in that operation.

Dr. Dean, in his discussion, mentioned ligation of the internal or common carotid artery. Only three days previously the speaker operated on a patient for cancer, making a resection of the lower jaw and part of the soft palate. He was forced to ligate the common carotid artery. The patient was in good condition after operation, but a hemiplegia followed, apparently just because of his heart giving way. While he recovered consciousness, he could not speak after the operation. Two months ago he did a similar operation on the lower jaw and part of the upper in a malignant case, doing a temporary compression on the common carotid artery, but the forceps were applied too firmly, and on relieving them he noticed a distinct compression of the artery, which he feared would necrose, and possibly fatal secondary hemorrhage ensue. He, therefore, ligated the common carotid, and that patient had the same symptoms—hemiplegia, with death following. On consulting the literature he found that 25 per cent. of cases of ligation of either the internal or common carotid die from just such symptoms, and he felt that he would keep away from such procedure in the future.

He wished to call attention to the reaching of the cavernous sinus very easily by a procedure first proposed by him for reaching the hypophysis, namely, through the antrum, being able to reach the opposite side.

Dr. Harry Kahn referred to a case, operated on some years ago by a general practitioner for the removal of tonsils and adenoids, but did not get the adenoids out completely. The speaker operated on the adenoids under a general anesthetic, and sent the patient to bed. About twelve hours later the right eye began to get larger and finally there was a proctosis. The patient had a septic temperature for two or three weeks, and then, by expectant treatment, the thing disappeared. Dr. Kahn did not know whether that was a cavernous sinus affair or not. There was no pus in the nose, and no evidence of anything except the proctosis, septic temperature, and meningeal symptoms evidenced by headache and vomiting. Treatment consisted of urotropin, hot applications, and so on, and the patient entirely recovered.

Dr. J. Holinger said that the most frequent disease of the cavernous sinus which we see or have to deal with is the continuation of a thrombophlebitis from the lateral sinus, caused by suppuration of the middle ear, especially the mastoid process. Unnecessary handling of the sinus at the operation, or ligation of the jugular vein, is undoubtedly a frequent cause for the progress of a thrombophlebitis backwards from the lateral sinus into the cavernous sinus, causing extensive thrombophlebitis of the sinuses at the base of the brain, and death.

Dr. George W. Boot had had one case of thrombosis of the cavernous sinus. It resulted from a furuncle on the nose. There was proptosis of the left eye and within twenty-four hours of the right eye also. The patient died of meningitis. He had seen a case of sarcoma of the orbit in the course of chronic suppurative otitis media, and also a case of tenoni-

titis, in both of which it was necessary to consider the possibility of cavernous sinus thrombosis in the differential diagnosis.

Dr. Langworthy, in closing the discussion, said it was quite impossible in a single evening to cover the whole field of cavernous sinus conditions, and especially the relation to other parts of the head. The object of his paper was to systematize the cavernous and treat it as a separate organ, if possible, and classify the pathological effects, which task had not been easy. He realized that it was not a practical field for labor, but with the attention that the pituitary body is receiving, and will continue to receive, it seemed to him that that would probably throw more light on the cavernous sinus and the structures adjacent to the sphenoid bone. Stereoscopic x-ray plates ought to be of help in clearing up a great many possible affections of this sinus.

Dr. Dean's experience had been unique.

Dr. Beck's method of reaching the cavernous sinus is certainly as practical as any.

Regarding Dr. Kahn's case, it was evidently one in which a diagnosis would be very difficult, and he would want to have more complete information before commenting on it.

A REPORT OF TWO SEVERE CASES OF ULCERO-MEMBRANOUS ANGINA.

Dr. Ira Frank said the contrast presented by these two cases, which he was fortunate to be able to study simultaneously, was so marked, considering they both represented the same disease, with presumably identical etiological factors, that he thought them worthy of a report.

Case 1. Male, aged 49, was admitted with normal pulse and temperature. Only a meager history was obtainable, which showed that five weeks previously he had suffered with a peritonsillar abscess, which, when opened, had discharged a large quantity of pus. After evacuation the symptoms continued without remission, though there was no further formation of pus. The condition grew worse day by day. When he came under Dr. Frank's observation he was unable to swallow or to open his mouth beyond a one-half-inch separation of the incisors. He was weak and emaciated. Examination of the mouth revealed an area of deep necrosis on the right side of the soft palate, oval in outline, extending from and involving the tip of the upper pole of the tonsil, anteriorly to the hard palate, and mesially to the mid-line. The area involved was composed of a greenish-gray, foul-smelling slough, which was easily removed, with very little bleeding, and exposed an ulcer, 1 to 1½ inches in diameter. The base was not raised, and only slightly injected. The edges were irregular and vertical, with a punched-out appearance. The floor was incompletely formed. A green semi-necrotic slough, with a perforation through the soft palate, large enough to permit a fair view of the superior portion of the naso-pharynx. Direct smears from the depths of the ulcer showed pus, fibrin, pneumococci, a fusiform bacillus and spirilla, with the latter forms predominating. Wassermann reaction twice negative. A piece of tissue from the floor of the ulcer was examined microscopically, with the following report: "No malignancy. A suppurative process with marked necrosing tendency. Pus cells numerous, with a small round-celled infiltration. Infective cellulitis, with gangrene." The patient was given a frequent gargle of

peroxide, with daily deep injections of sodium cacodylate in gradually increasing doses. Opiates were given for symptomatic relief. The first signs of improvement were noticed on the third day, and on the eleventh day he was entirely free from pain. The course of the entire process was ten weeks, six of which were spent in the hospital. He was discharged, with a firm scar distorting the soft palate, through the center of which ran a narrow fistula, leading up into the posterior nares.

Case 2. Female, aged 22, entered hospital with a temperature of 102 degrees. For one week had complained of severe sore throat, with almost total dysphagia, and the usual constitutional symptoms accompanying a severe throat infection. The right tonsil was found covered with a greenish-gray membrane extending beyond the tonsil anteriorly and posteriorly, and hanging in small islands on the pharyngeal wall. The membrane was adherent and tough, and rested on an angry red base. It was removed with difficulty. The uvula, soft palate and pharynx were edematous. Laryngeal examination revealed marked redness of larynx and epiglottis, and no edema. Cultures were negative, and smears showed large numbers of both fusiform bacilli and spirillae. Urinalysis negative; Schick reaction negative; Leucocytes, 24,000, with ordinary differential count. Same treatment as Case 1, with no appreciable improvement. She became hoarse, and was unable to talk above a whisper. Deglutition caused severe attacks of coughing, and she complained of intense substernal pain after swallowing minute quantities of water. Laryngeal examination impossible. Urine at all times scanty, and on the third day showed very positive albumin, with hyaline and granular casts. On the fourth day she vomited a large elongated mass of membrane, which was evidently a portion of a cast of the esophagus. On the fifth day, after a severe spell of dyspnea and cyanosis, she coughed up a ribbon of membrane, three inches long. Acute nephritic symptoms supervened and death occurred nine days after admission.

These cases, both clinically very malignant, present markedly differing types. The first was ulcerative and necrotic—a slowly extending destructive process, with symptoms relating only to the affected parts. The lesion responded readily to treatment. In the second case the process was primarily membranous, with only a slight tendency to superficial ulceration. The membrane spread rapidly, and there were evidences of its migration into the trachea and esophagus. Systematically, the case showed pronounced toxic features, with fever, nephritis and myocarditis. It may be suggested that the slow ulcerative type is a chronic infection, whereas the membranous type is an acute or fulminating type of the same disease—the ulcerating form being due to attenuated organisms or an immunizing protective effort of the body.

DISCUSSION.

Dr. Robert Sonnenschein said that two important points in Dr. Frank's paper were the facts that there is a marked clinical difference in cases of so-called Vincent's angina, and that some of these cases result fatally. A few months ago

Dr. Sonnenschein saw two patients at the Cook County Hospital suffering from ulcero-membranous angina, and both of them died in consequence thereof.

As a matter of justice, the disease in question ought to be called Plaut's angina, or Plaut-Vincent angina, since it was Plaut who discovered the organisms and first described the lesion of the disease, whereas Vincent a short time later wrote a great deal on the subject, and thus had his name very closely associated with the condition.

ROCK ISLAND COUNTY

The regular meeting of the Rock Island County Medical Society was held April 11 at the Manufacturer's hotel, Moline, Ill. A dinner preceded the business session.

The annual report of the secretary showed the attendance at one or more meetings of about 75 per cent. of the membership and an average attendance of thirty at each meeting.

The treasurer reported an expenditure of \$218.62 during the fiscal year, with a balance on hand of \$169.16.

The annual election of officers was then held with the following result: President, Geo. A. Wiggins, Milan; first vice-president, H. A. Beam, Moline; second vice-president, W. D. Chapman, Silvis; secretary, A. E. Williams, Rock Island; treasurer, A. T. Leipold, Moline; delegate to state convention, J. M. O. Bruner, Port Byron; alternate, F. H. First, Rock Island.

Dr. H. L. Wilson, Taylor Ridge, and Dr. M. H. Smith, Rock Island, were unanimously elected to membership.

Upon motion of Dr. W. D. Chapman the following resolution was passed:

WHEREAS, The *Journal of the American Medical Association*, in the fulfillment of its legitimate office, a laudable portion of which is the education of the profession and public concerning the content and therapeutic value of medicines and nostrums appearing on the market, has become involved in an action for damage against the *Journal* and its editor, Dr. Geo. H. Simmons; therefore be it

Resolved, That the Rock Island County Medical Society, Illinois, extend to Dr. Simmons and to the *Journal* a vote of confidence and of appreciation for work well done; together with an expression of the hope that the "Propaganda for Reform" department will continue as in the past to be a vigorous and worthy department of *Journal* activity; and be it further

Resolved, That a copy of this expression be spread upon the minutes of the society and copies be delivered one each to our friend and colleague, Dr. Geo. H. Simmons, to the ILLINOIS MEDICAL JOURNAL, and to the *Journal of the American Medical Association*.

A rising vote of thanks was tendered by the society to the retiring officers for their efficient service.

After the routine business was transacted the following program was rendered:

Dr. George A. Wiggins reads a paper on "Puerperal Eclampsia." The writer, who has had an unusual experience in treating these cases, developed his

subject in a most interesting and practical manner. His paper evoked favorable discussion from the following members: Beal, Snively, Littig, Conroy, Chapman, Peterson, Hauberg, Myers, Dart and Freck.

Dr. C. E. Robb presented a paper on "Otitis Media." In his paper Dr. Robb emphasized many points of special value to the general practitioner in treating such cases. Drs. Asay and Rochow lead in a discussion of this paper.

Thirty-seven members and several visitors attended this meeting. A. E. WILLIAMS, Secretary.

ST. CLAIR COUNTY.

The regular monthly meeting of the St. Clair County Medical Society was held at Carnegie Library, Belleville, April 6. President B. H. Portuondo presided and fourteen members were present.

Dr. Francis Reder of St. Louis, Mo., read a paper on "Remarks on Intestinal Anostomosis." A most scientific and exhaustive paper, covering the subject from the earliest history of surgery.

Drs. L. T. Tanguie, Freeburg; I. C. Henry and P. J. Carroll, East St. Louis, were admitted to membership upon recommendation of the Board of Censors.

Society adjourned to meet again at East St. Louis, May 4, 1916. A. E. HANSING, Secretary.

WINNEBAGO COUNTY

The Winnebago County Medical Society met at Unity Hall, Rockford, April 11, 1916, with Dr. C. A. Walker in the chair. Members present, 32; visitors, 3.

Dr. E. H. Ochsner of Chicago spoke on the subject, "The Bis-Chemistry of Topical Application." He devoted his paper to the accurate use of boric acid in surgical dressings, a saturated solution being essential. Discussion followed. It was moved and seconded that Dr. Ochsner be considered an honorary member of the Winnebago County Society.

The society authorized the chair to appoint a committee of three to draw up resolutions, stating the sentiment of the Winnebago County Medical Society for a better and more sanitary down-town waiting room. Also stating that this matter be considered thoroughly before the street car company be granted an extension of its present franchise, and that these resolutions be presented to the City Council at one of its earliest meetings. Drs. Tuite, Starkey and Park were appointed.

Dr. C. M. RANSEEN, Secy.-Treas.

Personals

Dr. Joseph Sondel, of Bradley, has removed to Kankakee.

Dr. W. W. Sherwood has removed from Pana to Wynne, Ark.

Dr. F. E. Tulley of Granite City, is about to remove to Los Angeles.

Dr. Adam Szwajkart has resigned as a member of the state board of health.

Dr. C. A. Stone has returned to Elgin after nineteen years practice in Belvidere.

Dr. J. D. Byrne, of DuQuoin, is taking a post-graduate course in New York City.

Dr. Heber Robarts has been elected president of the Safety First Society of Belleville.

Dr. A. S. Szwajkart, of Chicago, has resigned as member of the State Board of Health.

Dr. Frank Hanson, of Worden, has removed to Braceville, where he formerly was in practice.

Dr. Arthur R. Elliott delivered an address before the Indianapolis Medical Society, March 21.

Dr. and Mrs. Lewis S. Eastlake, Chicago, have returned after passing the winter in California and Hawaii.

Dr. Cassius C. Rogers has removed from 3240 Washington boulevard to 507 Roscoe street, Chicago.

Dr. J. R. Sutter, Jr., of Edwardsville, was robbed of a stock of narcotics, presumably by a dope fiend.

Dr. Edward Sherman, of Aurora, was appointed first lieutenant in the medical reserve corps of the Army.

Dr. Arthur R. Elliott delivered an address before the Joliet Medical Society, March 14, on "High Blood Pressure."

Dr. Ralph H. Kuhns sailed for Europe on the Oscar II, April 6, and will be assigned to Red Cross work in Germany.

Dr. Justin L. Mitchell, Chicago, who was operated on at the German Deaconess Hospital, has returned home convalescent.

Dr. E. L. Emerson, who has practiced for many years in Matherville, has announced his intention of retiring from practice.

Dr. Nelson M. Percy, Chicago, addressed the Seventh District Medical Society at its meeting at Sioux Falls, S. D., April 4.

Dr. Alfred A. Strauss, Chicago, delivered an illustrated lecture before the Dubuque (Iowa) Medical Association March 28.

Dr. A. H. Burr announces that he will mail reprints of his article on "Longevity in Relation to Sex," on receipt of ten cents in stamps.

Dr. George Guca, Chicago, who was a passenger on the steamer Brindisi, which was torpedoed off Albania in January, reached Boston, April 7.

Dr. Charles A. Parker addressed the Rock County (Wis.) Medical Society, March 28, on "Some Things Worth Knowing About Joints."

Dr. Mortimer Frank, Chicago, addressed the Harvard Medical History Club April 4, and the Johns Hopkins Medical Historical Club April 6.

Dr. Norman MacLeod Harris of the University of Chicago left, April 5, for Toronto, where he will join the Canadian Army Medical Corps.

Dr. William D. Nelson, Jr., Canton, who was seriously injured March 17, in an automobile accident in Oklahoma, has recovered and returned home.

Jiroch, Bradford, Katz and Lynott, Chicago quacks, have been indicted by the federal grand jury for using the mails to defraud. They forgot to "Lynott."

Dr. F. R. Goddard, of Harvard, has sold his practice to Dr. W. A. McClimans, and will remove to California after taking postgraduate work in Chicago.

It is said that Dr. John J. McShane made such a fine record as commissioner of health at Kenosha, that he has been called to Akron, Ohio, as commissioner.

Dr. George P. Gill, Rockford, delivered an address before the Winnebago County Medical Association, March 17, in which he told of his experience in France.

Dr. Frank E. Simpson, Chicago, delivered an address before the Racine County Medical Society March 30, on "Radium and Its Uses in the Treatment of Cancer and Other Skin Diseases."

Dr. James Patterson, of Chicago, is crusading against the noise nuisance in the vicinity of hospitals. One of the worst was a chime of bells in a church. But the church was burned!

Dr. Duro Guca, chief surgeon of the Bohemian-American Relief Expedition to Serbia and Montenegro, who was recently taken off a liner bound for New York on suspicion of being an Austrian spy, has been freed.

Dr. Giovanni B. Bruno, who has been serving in the Italian army for the past eight months,

has been promoted to captaincy in the medical corps and placed in charge of a field hospital on the Isonzo facing Goritz.

Dr. C. St. Clair Drake, secretary of the State Board of Health, gave an address on "Why a State Board of Health," illustrated with moving pictures, before the Madison County Medical Society, at Alton, April 7.

Dr. Paul Gronnerud, Chicago, was guest of honor at a dinner given by the Muskegon-Oceana Medical Society at Hackley Hospital, Muskegon, Mich., March 31. After the dinner Dr. Gronnerud delivered an illustrated address.

At a joint meeting of the Scott and Clinton counties (Iowa) medical societies and the White-side County (Ill.) Medical Society held at Clinton, March 24, Dr. Joseph B. Miller, Chicago, delivered the principal address.

The resignation of Dr. P. M. Kelly as superintendent of the Kankakee state hospital was accepted April 24 at a meeting of the state board of administration. Dr. Kelly resigns because of poor health. He is now at Colorado Springs, Colo.

In consequence of the resignation of Dr. Kelly the board made the following changes in the executive officers of the state insane asylums:

Dr. R. A. Goodner, superintendent of the Anna State Hospital, transferred to Kankakee Hospital as superintendent.

Dr. G. W. Morrow, assistant superintendent at Anna, transferred to Kankakee as assistant superintendent.

Dr. S. W. McKilvey, assistant physician at Anna, transferred to Kankakee as assistant physician.

Dr. Eugene Cohn, assistant superintendent at Kankakee, transferred to Chicago State Hospital as assistant superintendent.

Dr. H. J. Smith, assistant superintendent at Chicago, transferred to Anna as assistant superintendent.

Dr. J. A. Campbell, superintendent of Watertown State Hospital, transferred to Anna as superintendent.

Dr. Charles F. Reed, assistant superintendent of Peoria State Hospital, transferred to Watertown to be superintendent.

Dr. Isaac Freemmel, assistant superintendent of Chester State Hospital, transferred to Lincoln

State School and colony as assistant superintendent.

Dr. C. V. Caldwell, assistant superintendent at Lincoln, transferred to Peoria as assistant superintendent.

The vacancy for assistant superintendent at Chester will be filled by certification from the State Civil Service Commission.

Dr. Ernest E. Irons, Chicago, was the speaker of the evening at the meeting of the Freeport Academy of Medicine and Surgery, March 21. His subject was "Practical Therapeutic Application Based Upon Recent Knowledge of Infectious Diseases."

News Notes

—The Deering Memorial Chapel, located in the Wesley Memorial Hospital, was dedicated, April 9.

—It is said that two interns have volunteered to be inoculated with the germs that Dr. Mallory claims as the cause of scarlet fever.

—The Sangamon County Medical Society has organized a milk commission, which has established regulations for the certification of milk.

—The Elgin Physicians Club were guests of Dr. Gahagan at the Elgin State Hospital, April 10, the regular program being followed by a luncheon.

—The State Hospital Medical Association of the State Hospitals of Illinois will hold a meeting at Anna State Hospital, May 25-26. All physicians are cordially invited.

—Cities and towns all over the state organized "clean up and paint up" crusades this spring. It's getting so that the lazy man who neglects his yard and alley will almost be made uncomfortable.

—Examinations for entrance into the Medical Corps of the Navy will be held on or about June 16. Full particulars can be obtained by addressing the Surgeon General of the Navy, Washington, D. C.

—The twelfth annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Washington, D. C.,

May 11 and 12. Conference headquarters and all sessions, New Willard hotel.

—Following the discovery, March 31, that Miguel Vasquez, Moline, was suffering from leprosy, Dr. George A. Zeller of the state board of administration announced that the state would establish a leper colony at Watertown.

—In a formal report to the Public Buildings Committee of Congress the expenditure of \$50,000 for improvements for the Marine Hospitals in Chicago is proposed. The improvements consist of repairs to the building and the rebuilding of the seawall and breakwater.

—The forty-third annual meeting of the National Conference of Charities and Correction will be held in Indianapolis, May 10-17. This organization brings together about 2,500 men and women engaged in practical social work, voluntary and public, in the United States and Canada.

—At the meeting of the Institute of Medicine of Chicago, April 29, Prof. William L. Tower of the University of Chicago delivered an address on the "Fundamental Biologic Factors in the Evolution of Human Populations." Dr. William Healy of the Psychopathic Institute spoke on "The Eugenists and Medicopsychologic Problems."

—An elaborate annual report of tuberculosis work done under the auspices of the Aurora Anti-tuberculosis Society has been made by Louis Lowe Baker, R. N. The nurses of the city hospital received training in social service work; numerous articles advocating the establishment of a tuberculosis sanitarium were published and a petition of several thousand names was presented to the supervisors endorsing the project.

—The contract between the State Board of Administration and the Otho Sprague Memorial Institute for the establishment of a laboratory at the Chicago State Hospital for research work in dementia praecox has been signed, and the opening of the laboratory now awaits only the selection of a director. The medical director of the Sprague Memorial Laboratory is Dr. H. Gideon Wells of the University of Chicago.

—The suit of John A. Patton of Chattanooga, against the American Medical Association for damages was terminated dramatically by the death of the complainant following an emergency

operation April 26. The Association had built up a strong defense through the testimony of chemists and eminent physicians that the Wine of Cardui was practically inert except for the alcohol it contained. Numerous witnesses from the South testified that it was just "drinkin' likker."

Marriages

CHARLES L. O'BRIEN, M. D., to Miss Eleanor Mahoney, both of Chicago, February 13.

GEORGE W. WEBSTER, M. D., to Mabel Vibert MacNab, both of Chicago, April 15.

THOMAS R. LASWELL, M. D., New Hope, Ill., to Mrs. Mattie Hambleman of Murphysboro, Ill., March 11.

Obituary

JOHN RICE FLETCHER, M. D.

Dr. Fletcher of Winnetka and Chicago, died of pneumonia, April 28, after an acute illness of a week or so following an attack of rheumatism.

His confreres in ear, nose and throat work feel his death keenly, as he held a high place in their esteem, personally and professionally. He was known as a man of good judgment, operative skill and ability to tell what he knew. All recognized his scientific enthusiasm as dominant. He had served as president of the Chicago Otological and Laryngological Society; was one of the most active members and a frequent contributor to medical literature.

Dr. Fletcher had, since graduating from medical school in 1891, engaged in extensive general practice among the suburbs of the North Shore. Some seven or eight years ago he retired from that practice and took his family to Vienna, where for two years he thoroughly prepared himself for the special work to which he has since devoted himself so successfully in Chicago. He was professor in the Post-Graduate Medical School, where he was much respected by his medical associates and a large clinical following.

Personally he was a man of decided convictions and strong character, markedly independent of what he considered needless conventions. He was very democratic in his sympathies. Though

retiring in disposition, he was very affable to those whom he liked, full of kindly humor. His close friends will further testify to the value of his ideas, which bespoke the student of books and men, keen observer and a man who knew how to think.

His death, at the age of fifty-two, is only another evidence of the increasing loss we are suffering among men in middle life, when the fruitage of wisdom should be richest, when sympathy is ripe, judgment mature and intellectual life most productive.

ARTHUR M. CORWIN, A. M., M. D.

JOHN F. CAREY, M. D.

Dr. Carey was graduated from the St. Louis College of Physicians and Surgeons in 1895 and practiced in Braceville twenty years. Was one of the oldest and best known physicians in Grundy County. Was a Fellow of the American Medical Association; physician for Grundy County eighteen years; also physician for Braceville, Godley and Central City many years. Died at his home, March 19, of myocarditis; aged 55 years. As a sign of respect for his high standing in the community the schools were dismissed to allow the teachers to attend his funeral by train at Odell.

Deaths

WILLIAM FERGUSON MOFFETT, Chicago; an eclectic practitioner since 1857; aged 88; died at his home, March 14, from endocarditis.

ERNEST G. H. MIESSLER, Chicago (license, Illinois, years of practice, 1878); a resident of Chicago since 1871; died at his home, March 2, aged 90.

LEIGHTON I. SHERWOOD, Wenona, Ill. (license, Illinois); aged 86; a practitioner since 1859; died at his home, February 16, from bronchopneumonia.

ALVIS MARCELLUS ZAHORIK, M. D., Chicago; Dearborn Medical College, 1906; aged 56; died at his home in Chicago, March 24, from cerebral hemorrhage.

EMIL SINCERE, M. D., Chicago; University of Louisville, Ky., 1874; aged 80; formerly a member of the Illinois State Medical Society; died at his home in Chicago, March 30.

AMOS SAWYER, M. D., Hillsboro, Ill.; Washington University, St. Louis, 1859; aged 78; once president of the Central Illinois Medical Society; died at his home near Hillsboro, March 18.

MARION HOMER DUCKWALL, M. D., Moweaqua, Ill.; Illinois Medical College, Chicago, 1905; aged 38; a Fellow of the American Medical Association; died at St. Mary's Hospital, Decatur, Ill., March 25, from typhoid fever.

JOHN R. SMITH, M. D., Golconda, Ill.; Jefferson Medical College, 1864; aged 71; while passing through Pratt, Kan., with his invalid daughter, March 19, on the Rock Island Railroad, was stricken with cerebral hemorrhage and died.

MARION BERTHA McDONALD, M. D., Chicago; American College of Medicine and Surgery, 1903; aged 39; formerly a Fellow of the American Association; a member of the Illinois State Medical Society; assistant in the Eye and Ear Department of her alma mater; died at her home, April 1, from carcinoma.

JOHN J. BRINCKERHOFF, M. D., Minooka, Ill.; College of Physicians and Surgeons, Chicago, 1897; aged 46; for many years a practitioner and druggist of Minooka and secretary of the Desplaines Valley Poultry Association; died in the Silver Cross Hospital, Joliet, April 4, from embolism, a few hours after tonsillectomy.

CARLOS E. HUSK, M. D., Shabbona, Ill.; College of Physicians and Surgeons, Chicago, 1898; aged 42; formerly a practitioner of Santa Barbara, Chihuahua, Mexico; a member of the expedition sent by Mount Sinai Hospital, New York City, to investigate typhus fever; was seized with the disease at Nuevo Laredo, Mexico, and died, March 20, in Laredo, Texas.

GEORGE M. PEAIRS, M. D., Joliet, Ill.; Rush Medical College, 1891; aged 49; a Fellow of the American Medical Association; one of the most prominent surgeons of northern Illinois; surgeon to St. Joseph's and Silver Cross hospitals, Joliet; local surgeon of the Elgin, Joliet & Eastern and Chicago, Lake Shore & Eastern railways and Illinois Steel Company; died at his home in Joliet, April 13.

WILLIAM JAYNE, M. D., Springfield, Ill.; Missouri Medical College, St. Louis, 1840; aged 99; formerly territorial governor of the Dakotas; later mayor of Springfield, Ill., state senator from Sangamon county, and prominently identified with the banking interests of Springfield; at one time a member of the State Board of Charities; died at his home, March 20, from the effects of injuries received in a fall on an icy sidewalk in Springfield, in January last.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1916, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-official Remedies."

Radium Bromide, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Radium Carbonate, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Radium Chloride, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Radium Sulphate, W. L. Cummings Chemical Company.—It complies with the standards of N. N. R. and is sold on the basis of its radium content. W. L. Cummings Chemical Company, Lansdowne, Pa.

Borchardt's Dri-Malt Soup Extract.—A powder obtained by adding potassium carbonate 1.1 Gm. to each 100 Gm. of Borchardt's Malt Extract and evaporating. Borchardt Malt Extract Company, Chicago.

Borchardt's Dri-Malt Soup Extract with Wheat Flour.—A powder obtained by evaporating 100 Gm. Borchardt's Malt Soup Extract and 50 Gm. wheat flour made into a paste. Borchardt's Malt Extract Co., Chicago.

Borchardt's Finished Malt Soup Powder.—A powder obtained by evaporating 100 Gm. Borchardt's Malt Soup Extract, 50 Gm. wheat flour, made into a paste and 330 Gm. milk. Borchardt's Malt Extract Co., Chicago (*Jour. A. M. A.*, March 11, 1916, p. 815).

Saubermann Radium Emanation Activator.—An apparatus for the production of radioactive drinking water by the action of radium sulphate. Each apparatus is designed to furnish about 500 Cc. radioactive water per day. The exact daily capacity and efficiency are guaranteed and are stated for each apparatus. The following strength generators are offered:

Saubermann Radium Emanation Activator, 5,000 Mache Units.—An apparatus which imparts about 1.8 microcurie (5,000 Mache Units) to about 500 Cc. water daily.

Saubermann Radium Emanation Activator, 10,000 Mache Units.—An apparatus which imparts about 3.6 microcurie (10,000 Mache Units) to about 500 Cc. water daily.

Saubermann Radium Emanation Activator, 20,000 Mache Units.—An apparatus which imparts about 7.2 microcurie (20,000 Mache Units) to about 500 Cc. water daily.

Saubermann Radium Emanation Activator, 50,000 Mache Units.—An apparatus which imparts about 18 microcurie (50,000 Mache Units) to about 500 Cc. water daily. Radium Limited, U. S. A., New York (*Jour. A. M. A.*, March 18, 1916, p. 893).

Styracol Tablets, 5 grains.—Each tablet contains 5 grains styracol. Merck & Co., New York.

Tannalbin Tablets, 5 grains.—Each tablet contains 5 grains tannalbin. Merck & Co., New York.

Stanolind Liquid Paraffin.—A non-proprietary brand of liquid petrolatum, complying with the standards of the U. S. P., 8th ed., and made from American petroleum. Standard Oil Company of Indiana, Chicago (*Jour. A. M. A.*, April, 1916, p. 1027).

Book Notices

AUTOPLASTIC BONE SURGERY, by Charles Davison, M. D., Professor of Surgery and Clinical Surgery, University of Illinois, College of Medicine; Fellow of the American College of Surgeons; Surgeon to Cook County Hospital and University Hospital; and Franklin D. Smith, M. D., Clinical Pathologist to University Hospital. With 174 illustrations. Lea & Febiger. Philadelphia and New York. 1916.

Autoplastic bone surgery has within the last few years become so much used and so popular with operators that text books on the subject are warranted. This book of Davison and Smith, while not as complete as one might wish, will be of distinct value, and will stimulate other operators to work of this character. The one hundred and seventy-four illustrations, chiefly röntgenograms, are of especial value, and show, as no text could show, the application of the transplant and the final results. More of this work will be done in the future. Autoplasts will supplant the use of the Lane plate to a considerable extent, and this text together with the drawings and röntgenograms will be of distinct value to the operators beginning this work.

AMERICAN PUBLIC HEALTH PROTECTION, by Henry Bixby Hemenway, A. M., M. D., Author of *The Legal Principles of Public Health Administration*. The Bobbs-Merrill Company, Indianapolis. Cloth, \$1.25 net.

The author of this treatise is one of the most thorough students of the subject in this country. Frequent references to the law underlying public health activities remind one that he speaks on the subject with authority and the prestige due the writer of the leading text book on public health law.

The present volume will be read with avidity and profit by the ever-increasing number of people who are interested and desire more light on the subject of public health. All through the chapters the modern ideas of the proper field of public health efforts are contrasted with the mediæval ideas that still persist so widely. He is insistent that the new profession must avail itself of the very latest developments of science or be unworthy of the heritage of the great souls that have blazed the way to the conquest of pestilence and epidemic.

The historical review covers the early development of public health in the United States and the history of the present national health activities of the government.

The contrast of medical and sanitary education is the crux of the whole treatise, for therein the author demonstrates that medical education practically ignores the demands for public health officials. His demand for whole time health officers is clinched as follows:

"No doctor engaged in private practice has probably ever served honestly and faithfully as a health official and not thereby injured, or ruined, his private practice. . . . To ask a medical practitioner to serve as a public officer of health and not pay him amply therefore is to put a premium upon dishonesty."

One of the mooted points in public health administration is whether medical school inspection should be under health departments or boards of education. The author favors the school authorities and offers plausible arguments.

As to the organization of health departments, the author is unqualifiedly for the single executive rather than the board of health with its divided authority, but insists that the official should be a real sanitarian. Some of the political appointees evidently make his gorge rise in disgust.

The author offers some ingenious suggestions for the education of those charged with the responsibilities of public health in various capacities. Physicians will doubtless for a long time to come be selected in one way or another to look after the public health. But even if they confine their activities to private practice they will find Dr. Hemenway's little volume delightful reading, which will also pave the way for better cooperation between the profession and the health officer.

PULMONARY TUBERCULOSIS. By Maurice Fishberg, M. D., Clinical Professor of Tuberculosis, University and Bellevue Hospital Medical College; Attending Physician, Montefiore Home and Hospital for Chronic Diseases, New York. Octavo, 639 pages, with 91 engravings and 18 plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

A timely volume by a physician of wide experience, as a specialist in lung diseases. It is a work that will prove most valuable to the general practitioner, who is called upon to treat the majority of cases of pulmonary tuberculosis at home. The work is complete in every detail, in diagnosis, treatment and in the prevention of the disease. Particular stress is laid upon the home treatment and care of these unfortunates, and if properly applied will do much towards their cure, as far as a cure is possible. The treatment by artificial pneumothorax has been given in detail. Facts, established by leaders in this branch of medicine, have been presented, with the author's own results, making it a thorough and comprehensive work. It should meet with a deserved success.

THE PRINCIPLES AND PRACTICE OF PERIMETRY. By Luther C. Peter, A. M., M. D., F. A. C. S. Associate Professor of Ophthalmology, Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmologist to the Rush Hospital for Consumption and Allied Diseases. 232 pages, with 119 illustrations. Cloth, \$2.50 net. Lea & Febiger, Publishers, Philadelphia and New York.

This is probably the only work devoted exclusively to the subject perimetry in the English language. It covers the ground thoroughly, and the relation of perimetry to other diseases, as those of the brain and nervous system, and of the nose is presented. It is a subject that heretofore has been neglected in most text-books, the fundamentals and its principles seen clearly presented. It should prove a valuable aid in the diagnosis of diseases in which perimetry is indicated.

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THE DOCTOR AND THE PUBLIC HEALTH.*

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Members of the Illinois State Medical Society:

The medical profession of today is agreed upon the proposition that in the conservation of human life prevention of disease is of the first importance. This attitude regarding disease has grown out of the better understanding of the nature of diseases, their causes, modes of transmission, and consequently in the means of prevention.

There was a time in the history of our profession, and this is not so very remote, when about all the doctor could hope to do was to treat those who might be suffering from disease; and this was all the public expected of him. And while it is still about all a large element in every community expect of doctors, it is by no means considered by the profession as its full duty to the public. The best proof of this lies in the many measures adopted at the earnest request of the doctors which have for their chief object the prevention of contagious or infectious diseases.

The growth of this attitude has kept pace with the development of our knowledge of the causation of disease; indeed, it has advanced faster, rather than lagged behind it, and more has been expected than the actual knowledge of primary causes of disease would warrant; the optimism of the profession traveling ahead of the scientific advances.

In 1914, at the annual meeting of the Illinois State Medical Society, Dr. Charles J. Whalen, in his presidential address, called attention to the "Increasing Death Rate after Middle Life," pointed out some of the causes tending to this

increase, and indicated the remedies for this condition. This address, if heeded as its importance would warrant, should have been the means of preventing disease in many of those in advanced years, and of adding to the period of useful life, as well as contributing much to the comfort and happiness of those in advanced age.

That the increase in the death rate of those past middle life is actual is shown by statistics of unquestionable verity; that a very large part of this is needless is also clearly established, and the facts borne out by observations of many other competent authorities.

Dr. Joseph C. Bloodgood, of Baltimore, a distinguished guest of our Society at this meeting, has recently said:

I have had the impression, especially during the past five years, that the relative proportion of benign lesions of the breast is steadily changing, and that the percentage of benign lesions is on the increase. This change was associated with a shorter duration of the disease, that is, women were seeking advice earlier. I did not realize, however, or even dare hope that this fortunate change would be as great as it proved to be. December 12th, the figures were completed in a study of 1,577 cases recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital. Further investigation may change these figures slightly, but the evidence is sufficient to justify a preliminary report now, because, it seems to me, it is the most favorable and encouraging evidence we have up to date—so favorable, that it seems almost just to state that education of women and of the profession can cure cancer of the breast.

It is then shown that the percentage of benign lesions of the breast in women has increased from 32, in 1889 to 1900, to 54 in the five years from 1910 to 1915, and that the increase in the past three years has been 12 per cent. over the previous three years.

These figures are significant of the tendency in what we may well term "modern medicine," and, as suggested by Dr. Bloodgood it is the education of the people and the doctors which may be considered responsible for the change.

To quote again from Dr. Whalen:

*President's address delivered at the sixty-sixth annual meeting of the Illinois State Medical Society at Champaign, May 17, 1916.

Probably 50 per cent. of all cases of disease could be prevented by reasonable hygienic precautions, and the cultivation of life habits which tend to neutralize the strain of modern existence and build up a resistance to degenerative diseases in general. * * * The secret of prevention of degenerative diseases lies in the recognition of their earliest signs in an individual, and this can only be determined by frequent examination. The principle of frequent examination is applied by business or government to banks, steam boilers, steam vessels, life preservers, garbage cans, etc.; in fact to almost every institution or machine employed by man that can possibly go wrong, excepting the most delicately adjusted and wonderful machine of all—his body.

Frequent examination, then, is to be the secret of disease prevention and the prolongation of human life; frequent examination, or any examination of the average person can only be secured through the education of the individual. The education of the average individual must be the work of the doctors; at least must be initiated by them. Must always be directed by them. This education must begin at an early age, before habits are formed which tend to usher in those degenerative changes which are responsible for so many premature deaths. It must be continuous, as the public very soon forgets or disregards rules of conduct unless frequently reminded of the necessity of their observance.

What has been said of "degenerative diseases," and of "cancer of the female breast," can be said of many other diseases, and when the public is educated to the knowledge that the treatment of disease, like the treatment of other less delicate machinery, is the function of the educated and skillful physician, rather than that of the uneducated, unskilled and inexperienced layman, whether parent, friend, or merely the meddling neighbor, then may we hope to increase the length of life and the period of usefulness far beyond the present term.

No physician of even a single year's experience can fail to have seen cases in which "home treatment" had been carried out until life was in the greatest jeopardy, and too frequently the doctor called when the case appeared hopeless. Nothing short of profound ignorance could account for this. The excuse of the theory and practice of the "so-called Christian Science" is nothing more than a radical demonstration of this ignorance disguised under the cloak of a religion. If there could be anything further from "science," or anything more at variance

with what is "religion" as it is understood today, we have no knowledge of it. A "religion" which will stand in the way of the proper care of the innocent and dependent child when attacked by disease can have but little to commend it to the humanitarian. A "religion" which neglects to care for the aged and infirm, ignoring the degenerative changes incident to old age, is not such as the Founder of the Christian religion would approve. And, while there are certain features of disease which do not need "medicine," who but the doctor is qualified to determine when such conditions exist?

How many cases of tuberculosis pass beyond the stage from which recovery is possible because of a neglect to consult the doctor in time can scarcely be estimated, but the number must be very great. Those who are in a position to know most upon this subject will agree that more than fifty per cent. of such cases are found among the incurables. That among these incurables every grade of treatment, from the more simple "home remedies" to the more dangerous patent, or proprietaries, have been employed for months before the doctor is ever consulted. Often these forms of "treatment" are supplemented by the still more disastrous treatment by the mail order quack.

Among the fallacies regarding tuberculosis the public need instruction as to the limitations of climate in the cure of this disease, a too ready belief that certain climates alone can effect cures, and that little regard need be paid to the other important agencies now recognized as essentials in the treatment of even the advanced case if the patient can only get transportation to the "land of promise"; which, it unfortunately proves to be in too many cases. A much more sound conservatism is now manifested by the profession in this respect; and, while it is well known that there are climates which do have advantages over others in the treatment of tuberculosis, it is also equally well known that climate alone, however good it may be, does not compensate for the lack of strict medical supervision, good food, the presence of friends and relatives, and the restfulness and peace of mind so necessary to the tubercular.

Another well grounded error strongly entrenched in the lay mind is that tuberculosis is always hereditary; that the fact that no near

relative has died from this disease offers evidence of immunity, and that it is incredible that it may find a victim in a family in which the parents and all other near relatives have lived to a good age, the contagiousness of the disease being entirely ignored. An active and persistent campaign against this error is imperative, and if waged with energy by doctors wherever opportunity offers, will result in marked improvement in the tuberculosis situation.

The heredity tradition and the more recent climate delusion closely follow home treatment, and patent or proprietary treatment, as contributors to the tuberculosis mortality, and taken together they form a triumvirate which has cost many thousands of lives, and are yet a continuing menace to the human race. Let us lend our aid to eliminate these destructive influences. It can only be done by educating the people on health questions.

Diseases of the heart are often treated at home by patent medicines when nothing more than rest in bed is needed, and every physician can recall cases of this kind where the false claims of the patent or proprietary medicine manufacturer have beguiled the victim with false hopes until the disease has passed beyond recovery.

An equally vicious feature of this question is that in which the sufferer makes a false diagnosis of heart disease, because of certain symptoms, when the actual disease is nephritis. That this has been done, and done frequently in the last ten years, is within the knowledge of every doctor. The strongest factor in this tragedy is the unscrupulous and lying advertising of the manufacturer of certain sure cures for "heart disease," which, through almanacs and newspapers, reach the homes of the rich and the poor, the learned and the unlearned; and, tragic as it may seem, find their deluded victims among all classes.

Drug and liquor habits formed through the injudicious use of patent, or proprietary, "dopes" has been extremely common in the past, and even now, after the more or less complete enforcement of the pure drug laws, is still finding its victims by hundreds. And the feature of this vicious business which is most pitiful is that many of the victims are actually in need of the best medical care, and under the delusions induced by the crafty advertising are postponing the examination until too late for any aid to be given by the most skillful physician or surgeon.

And, as the benefits of treatment of so many diseases are inversely as the time elapsing before treatment is instituted, the necessity for an early diagnosis and proper treatment can not be too strongly urged. By what other means than through education of the public will the doctor be consulted at the first symptom of disease?

There will probably be very little disagreement as to the need of more general enlightenment on health questions, but there may very well be a wide difference of opinion as to whence this educational effort should spring. Doctors may feel that they are already rendering to the public in the way of uncompensated service all they should be asked to contribute. This may be true of many, but it is also probably true that those who are giving most in this way are the very ones who are asking that more be done; that more opportunity be given for general public education; and, also those who are most ready to further contribute to this cause. But there is a reason why doctors should take the initiative in all this educational work on health matters. The reason is that they are the only persons who know what is needed and how to proceed to secure the desired end.

Others may take the stand that medical health officers are the proper persons to take the problem of public health in hand. That they receive pay for their services as such public health officers, and that it is unfair to ask others of the profession to take up their burdens without compensation. This may be true, but doctors are not of the class of those who will neglect a plain duty because someone else is not fulfilling his own obligations. And it is useless to deny that we are responsible for the community health. We owe it to our clientele to prevent disease when we can do so. We can now see our way clear to the prevention of diseases through a more generally enlightened public. The quoted words of Dr. Whalen, and of Dr. Bloodgood affirm this as a fact; experience of others sustain this position, and we can not do otherwise than to continue in the course so clearly pointed out.

One important feature regarding the failure of public health officials in the smaller communities to encourage the work of the "public health educator" is the smallness of salary he is paid, and another is that he is usually an appointee whose fitness for the position has nothing to do with his appointment. His is a political job,

and to hold it he must steer clear of conflicts except in defense of the "administration" of which he is a part. Such public health officers are usually taken from the ranks of the profession and have had no special qualifications except that they have been "supporters of the administration." The only remedy for such conditions would be to divorce health departments from all political affiliations, and to secure health officers who are competent to deal with all health questions. Such health officers would readily take an active part in everything pertaining to health questions. But as this thought is probably quite too "utopian" for present conditions, and as we must deal with things as we find them, it will be necessary for us to look to others for aid in this most important service to humanity.

Referring again to the lack of support by health officers in cities and towns we find that it is often due to a positive interference on the part of politicians whose "interests" would suffer by an enforcement of health laws. That orders to "clean up" premises which are dangerous to health are met by opposition, and all orders from headquarters must be modified or abandoned altogether. Such examples are not unusual. Further, it may be said that it only lacks the united support of the doctors of a community to overcome this opposition and maintain the dignity of the medical health officer, and secure for the public the best possible protection against contagious diseases. Unfortunately there are frequently found, not only "apathy" in the profession, but also active opposition.

On this point we might very well paraphrase the toast to "my country" by a distinguished patriot: "The medical Health Officer: may he ever be right; but right or wrong, the medical health officer." Lay support for health officers would be comparatively certain if the medical profession would act as a unit in its favor.

It may be asked why county medical societies do not take up this work? Why they do not arrange for public meetings for the sole purpose of instructing the people on health questions? This would appear to be in accord with the ethics of the profession, and if undertaken by the organized representative body in each community could not be stigmatized as "advertising," as would be the case if undertaken by the individual. If popular addresses by doctors could be made in every school, every church, every pub-

lic hall, at least twice a year, much good would result, and the profession itself would not suffer by its disinterested activity in the public's general welfare. This is what societies might do. What they are doing in this line is very far short of what they might do, and what many believe they should do.

If the spirit of commercialism could be eliminated from the medical profession we might hope for a more general support for all measures looking to the prevention of disease; but so long as a patient is to be considered as an asset of more or less value, so long may we expect his exploitation to continue.

I have said that in order to secure the most favorable action in disease prevention we must begin our educational campaign early. This education should begin in the schools; and, while the primary idea with many superintendents and principals of schools is that the child should be educated only in the ordinary branches of knowledge, still there are many who are ready to join us in our efforts for disease prevention, and who will give us every encouragement in this work.

The superintendents of schools in the smaller cities have exceptional opportunities for engaging in this work through the "parent-teacher" associations, and through the various clubs and similar organizations connected with the school system. Principals of schools very readily lend their aid in the prevention of disease, as by this they secure a more regular attendance, and the result shows a greater efficiency. Boards of education should also take a greater interest in this because the cost of education is increased by irregular attendance. The general efficiency of a school is coming to be measured by its per capita cost for education; and any form of disease which hinders a child from maintaining its highest standard of efficiency adds to the per capita cost. Here is where early and frequent examination of school children will prove to be a good investment. Here is where education of the child in the care of his body will be reflected in the increased interest in health matters by the parent.

Pastors of churches have exceptional opportunities for the promulgation of health education, and it is not too much to expect from them a most hearty co-operation in our own efforts to enlighten the public in the preservation of health by preventive measures. It is found that very

little solicitation is needed in order to have one or two days each year devoted to a discussion of the laws of health. In connection with the church work along this line there are a number of minor clubs which have a close relationship to the homes, and the members of which are especially interested in the growing child, and through these organized bodies good supplementary work can be carried on among the younger set in every church. The "mothers' clubs" should be particularly valuable aids in this service, and when their attention can be secured much good will certainly result.

The Young Women's Christian Associations throughout the state can render the greatest help in the education of the future mothers, and their co-operation should be sought in every place where branches exist. Many of these organizations conduct classes in physical culture, thus developing the bodies of the girls with marked benefit, and this might very well be supplemented by a course of lectures by physicians, dealing particularly with the health and its preservation; the dangers of delay if disease does attack them; the diseases to which they are most susceptible, and the means to employ to avert them. When we reflect that the health of the "mothers" of a nation is its best asset, we will realize the importance of maintaining the health of the young girls and young women.

These are some of the agencies through which we may reach and teach those in most need of health education, and all these may be reached by the doctors. It is not expected that any one doctor can undertake to carry on a propaganda alone in a community unless he is the only doctor, and it could hardly be expected that all these agencies can be brought into action in any place; but it is well within the probabilities that some of these can be reached by each physician in the city or village, and that the collective efforts of all will be felt throughout the entire community.

There is yet to be named an agency for good in every community; an agency which, properly directed and judiciously handled, is capable of leading all others in the beneficent service of "health education"; an agency which is often neglected as an aid, sometimes misdirected, and rarely positively antagonistic to anything suggested by the medical profession. This agent is the newspaper. Through the newspaper may be published all notices of meetings, with such mat-

ters pertaining to the subjects to be discussed as will tend to arouse an interest in it, and to bring out those whom it is desired to reach. In addition to this important service many papers will be glad to publish at intervals letters relating to health matters; suggestions regarding foods, sanitation, personal and public hygiene; and many topics of vital interest in the public health propaganda. The "power of the press" has been recognized in every avenue of human interest or endeavor, but its full power has seldom been directed against some of the most glaring faults of our community life. Few papers in this country take a stand against fraudulent drug compounds; many, indeed, carry advertisements of the most vicious and dangerous patent, or proprietary medicines, and act as lures for the unwary. Here the business office controls the policy of the paper; the editorial conscience, if there is one on the editorial staff, must be silent in order that the stockholders may receive their dividends. But to the honor of the great profession it can be said that there are but few great newspapers which show a lack of conscience; very few unwilling to lend their support to any effort for the betterment of the people. All honor to those papers which have refused to permit frauds to be imposed upon a credulous public through their columns. May their tribe increase.

Among the important features of the relation of the doctor to the public is that of united effort to secure such legislative action as will best serve the interests of the sick and afflicted. *United effort* is used advisedly, because of the sad lack of anything like unity in our action. It is not enough for the society to go on record as favoring, or of opposing certain measures. Individuals should act independently as well as collectively, and should bring their personal influence to bear upon the members of the house and senate whenever any important measure is up for action. All the fakers, and all such as seek to enter into the practice of medicine without a medical education; all those who seek to victimize the credulous and ignorant put forth every effort to secure legislation favorable to themselves, but very little is done by the doctors in this direction.

Can it be possible that the lack of this activity is due to the fact that the doctors have never asked for anything to benefit themselves, and for this reason are so little interested? Can it be that to secure the united support of the regu-

lar medical profession we must present something which will be for the benefit of doctors rather than for the people? It is unbelievable, but the fact remains that in the united efforts of the various cults and isms which control much of the legislation, a financial interest is the object in view; and, the converse is true of the attitude of the doctor and in the measures proposed for enactment into laws. Doctors are more harmed than benefited by laws which protect the people from contagious diseases; which provide hygienic and sanitary conditions under which they can live.

Ignorance of the laws of life and of the conditions tending to disease and decay are not confined solely to the illiterate. Much of this lack of definite knowledge is to be found in the educated, though many are now ignoring the plain facts and calling it a religion.

An evil of vast proportions has invaded the medical profession of this state; probably of all states; and its baneful influence is being reflected upon the public, as well as working a direct and positive injury to the medical profession. This evil is nothing more than "contract practice" for lodges, county boards and corporations, compensation for which is fixed by the lodge, county board, or corporation, and is wholly inadequate for the service rendered. If there is any reason why a doctor should serve any organized body, whether secret society lodge, county board of supervisors, or corporation organized for profit, for any less sum than would be charged an individual for the same service, such reason is not apparent. It is stated, on the authority of one who has been in the corporation service that the salary he received from a million dollar enterprise was less than twenty-five per cent. of what he would have received at the usual rates for the service rendered. The profession of that community was defrauded out of the seventy-five per cent. which was its just due.

This evil is of far greater importance than the "free dispensary evil" of which we have frequently heard so much, and might be largely prevented by action of the county societies, some of which have prohibited members from taking any "contracts" for professional service. Counties which have adopted these stringent rules are the

best organized, and have the most useful and active societies in the state. May their number increase.

But this is not the only feature which is to be condemned. The quality of service given to the employee of a corporation is often far inferior to that which he would receive if he were employing his own physician; indeed, if he employed the same physician who is in the service of the corporation he would often secure much better attention. This is so well known that many persons refuse to permit the "company doctor" to treat them when injured. Managers of corporations who employ a surgeon frequently coerce their injured employees in continuing the services of the "company doctor" by a threat to refuse to pay the doctor bill if any other than the "company doctor" is employed. In some cases they are told it is the only way to "hold their jobs." Fitness for the work has not been considered a requirement by lodges, counties, or corporations, when selecting a "contract doctor," and the result is that many inexperienced surgeons are trusted with service demanding the most skillful and best prepared of the profession. The law should be invoked to protect the employee from incompetent medical and surgical care; where laws are inadequate they should be amended.

As emphasis to what I have said about self treatment, or the pernicious "home treatment," of which doctors hear so much, I feel that Dr. Bayard Holmes expresses the facts with great clearness when he says: "It seems to me that the modern tendency for every man to become his own doctor is most productive of an abnormal state of mind and body. Better that every man were his own lawyer, his own electrician, his own plumber, his own engineer." In plain words it would be far safer if the matters relating to business affairs were to be left to the unskilled, and those relating to the physical and mental well-being of the individual carefully watched over by trained and competent advisers. That the public may be finally brought to realize that this is true is a hope. Let us encourage this idea and work for its complete and perfect fruition.

229A Collinsville Ave.

THE MEDICAL MECHANISM FOR WAR IN THE U. S.

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INTRODUCTION.

The present plans for the military forces now organized contemplate four infantry divisions of regulars, numbered from 1 to 4 inclusive, and 12 infantry divisions of militia numbered from 5 to 16 inclusive. But three divisions of regular infantry and one division of cavalry are organized on paper at present. This scheme does not provide a well balanced army, owing to the lack of cavalry, so in this discussion I have adopted 8 infantry divisions for each contingent and three divisions of cavalry. This gives 16 infantry divisions and 6 cavalry divisions for the first line of 400,000 men. I doubt whether more than 8 divisions could be organized from the militia, owing to the many deficiencies in units. There are a little less than 8 regiments of cavalry in the militia, which is just enough to provide one cavalry regiment for the 8 infantry divisions of militia.

THE MEDICAL MECHANISM FOR WAR IN THE U. S.

This paper is intended to convey the idea of the relation and parts of a medical machine operated for the purpose of properly caring for the sick and wounded, and preserving the health of armies during the operations of war. The military system of nations, including the medical department, appears to have developed from their geographical position and the incidents of their history pointing out to them the wisest course to pursue. The territory of Germany having been harried many times in her history by her neighbors, she converts her male population into efficient soldiers to prevent in future a repetition of the incidents of the past. England being an island has developed her military strength in the character of sea power as vital to her continued existence and the protection of her overseas possessions. The United States in the early period of her history, confident of the protection against invasion afforded by the oceans that wash her shores, has heretofore contented herself with the development of a military organization sufficient only for a national police force. The character of its organization was determined by a peculiar circumstance. The settlements on

the Atlantic seaboard were constantly extending westward, and those on the Pacific coast eastward, which resulted in the American Indian being forced into what was formerly known as the Great American Desert and consisting of a vast territory practically in the heart of the country extending from Canada to the Gulf of Mexico and the northern border of Mexico. For many years we spoke of the eastern and western edge of the Indian country as the frontier. The control of this savage and wily enemy intervening between the east and west, was for many years the most pressing necessity from a military standpoint and determined to a great extent the development of our military system. The regular army being small, from 13,000 to 15,000, and the territory to be controlled large, it was necessary to establish military posts or stations each garrisoned by small detachments of one or more companies. There were no railroads at this period in this area, as the first transcontinental railroad was completed in 1866. These posts were bases to shelter the troops, and in which supplies could be accumulated, and from which the neighboring territory could be controlled. Under this protection the west was settled, its railroads built and in time the Indian eliminated as a disturbing factor. This system was the antithesis of preparation for war as it entailed numerous subdivisions of our army in isolated positions, instead of concentration at strategic points. There was no organization of brigades, divisions, corps, etc., and on the outbreak of the Spanish-American War this organization had to be effected after the declaration of war, and brigades and divisions were commanded by officers who had rarely if ever commanded a larger force than a regiment, in the field. After the Indian had been eliminated as a military consideration, the post system could not be eliminated, though its continuance was a positive military disadvantage, because of local political influence, unwilling to lose the pecuniary benefits this system afforded. Medical service was unorganized. There was a Medical Corps members of which were assigned to posts and the surgeon in charge designated as the Post Surgeon. The post hospital was the only hospital. There were no mobile field hospitals nor were there any until after the Spanish-American War, as a permanent unit in our medical organization. This system existed at the outbreak of the Civil War, with no organized

lines of medical assistance in battle, and with a Medical Corps too small numerically to be effective. The same system and lack of organization existed at the outbreak of the Spanish-American War, the experience and the organization gained during the last two years of the Civil War having been apparently forgotten like a lost art. The suffering from lack of organization and disease during the Spanish-American War is too fresh in your memory to require further reference, but I can illustrate to you conditions during the first two years of the Civil War by reading to you the following letter written after the war had been in progress more than a year, and ten days after the beginning of the battle to which it refers, the second battle of Manassas:

Surgeon-General's Office,
September 7, 1862.

Honorable Edwin M. Stanton,
Secretary of War.

SIR:—I have the honor to ask your attention to the frightful state of disorder existing in the arrangement for removing the wounded from the field of battle. The scarcity of ambulances, the want of organization, the drunkenness and incompetency of the drivers, the total absence of ambulance attendants are now working their legitimate results, results which I feel I have no right to keep from the knowledge of the department. The whole system should be under the charge of the medical department. An ambulance corps should be organized and set in instant operation. I have already laid before you a plan for such an organization which I think covers the whole ground, but which I am sorry to find does not meet with the approval of the Commander-in-Chief. I am not wedded to it. I only ask that some system may be adopted by which the removal of the sick from the field of battle may be speedily accomplished and the suffering to which they are now subjected be in future as far as possible avoided. Up to this date six hundred wounded still remain on the battlefield in consequence of an insufficiency of ambulances and the want of a proper system for regulating their removal in the Army of Virginia. Many have died of starvation, many more will die in consequence of exhaustion and all have endured torments which might have been avoided. I ask, Sir, that you give me your aid in this matter; that you will interpose to prevent a recurrence of such consequences as have followed the recent battle, consequences which will inevitably ensue on the next important engagement if nothing is done to obviate them. I am, Sir, very respectfully,

Your obedient servant,
WM. A. HAMMOND,
Surgeon-General.

This lack of organization existed for still another year until Jonathan Letterman, Medical

Director, Army of the Potomac, put into operation a system which was effective. It has been copied by nearly all civilized nations and is the essential basis of our present system. After the organization of the General Staff of the Army attention was directed to moulding this post system into such shape as to give it a form, as far as its inherent disadvantages permitted, suitable for war. Successive orders of the War Department effected the division of the United States into four military departments—the Eastern, the Central, the Western and Southern. The troops stationed at the various posts in each department were organized into brigades and the brigades into divisions so that each department had an infantry division at peace strength, except the Southern Department, which has a cavalry division. So now we have two systems, a peace or post system supplied with the wagons, ambulances, etc., necessary to do the work at the post and care for the sick, with surgeons and hospital corps men, and a war system. To change from the post system to the war system, a regiment moving out from its station to the camp of mobilization would take sufficient of the post transportation or all of it if necessary, to make up its field trains, regimental infirmary, ambulances and wagons so that when mobilized into a division in each department, there would be sufficient transportation to provide for the organization of two field hospitals and two ambulance companies and four camp infirmaries. So that with the two already organized in each department as permanent units, the infantry division would have four field hospital companies, four ambulance companies, four camp infirmaries, and each regiment would have a pack mule to carry the regimental aid station equipment. The medical and hospital corps personnel would be detailed from the posts the troops were serving in to accompany them in the proportion required in the Tables of Organization, or to be subsequently expanded into that proportion. In order to avoid leaving any of the trained medical officers at the posts, to take care of the sick left by the outgoing troops, a practicing physician in the vicinity of the Medical Reserve Corps, previously designated as a locum tenens, is directed to take charge of them. He attends to his practice as usual, but attends the sick in the post hospital in addition for a certain compensation. When the organization of the division

made up from the accretions from the posts in each military department, is completed and expanded to war strength, it will consist of:

Headquarters,
 3 Brigades of Infantry; 3 regiments each.
 1 Regiment of Cavalry.
 1 Brigade of Light Artillery (2 regiments).
 1 Pioneer Battalion of Engineers.
 1 Field Battalion of Signal Troops.
 Trains—Commander of Trains, Military Police, etc.:
 1 Ammunition train.
 1 Supply train.
 1 Sanitary train.
 1 Engineer train.

While the combatant strength of an infantry division is 20,673, the aggregate strength is 23,131 and the medical department of the division is charged with the medical care of the latter number. An infantry division occupies 15.4 miles of road space. It is necessary for you to know that the sanitary train consists of four field hospital companies, each with six medical officers, 9 non-commissioned officers and 58 privates first class and privates, and with a bed capacity of 216, hauled in seven four mule wagons. Four ambulance companies, each with 5 medical officers, 9 non-commissioned officers, and 70 privates first class and privates of the Hospital Corps and twelve four-mule ambulances, three wagons and four pack mules.

Four camp infirmaries, each with one sergeant, Hospital Corps, and one four-mule wagon to haul it in. These four camp infirmaries are part of the twelve regimental infirmaries brought by the twelve regiments of the division from their posts to the mobilization camp. The equipment of the other eight is turned into the medical supply officer of the mobilization camp for storage and the eight extra wagons and all the ambulances constitute part of the new field hospitals and Ambulance Companies to be organized as previously described. The medical personnel of a division are 99 medical officers and 889 enlisted men of the Hospital Corps, including non-commissioned officers. The division is the great administrative and tactical unit and the basis of Army organization. The lines of medical assistance in battle of an army are the lines of medical assistances of each of its divisions operating on the same principle plus the lines of communication. A field army is composed of two or more divisions. An Army of two or more field Armies. It will be of interest now to consider what duties

the medical department is charged with in war and the facilities and equipment provided for discharging them.

DUTIES OF THE MEDICAL DEPARTMENT.

1. The initiation of sanitary measures to insure the health of troops.
2. The direction and execution of all measures of public health among the inhabitants of occupied territory.
3. The care of the sick and wounded on the march, in camp, on the battlefield and after removal therefrom.
4. The methodical disposition of the sick and wounded, so as to insure the retention of those effective, and relieve the fighting force of the non-effective.
5. The transportation of the sick and wounded.
6. The establishment of hospitals and other formations necessary for the care of the sick and injured.
7. The supply of sanitary material necessary for the health of troops and the care of the sick and injured.
8. The preparation and preservation of individual records of sickness and injury in order that claims may be adjudicated with justice to the government and to the individual.

1. The sanitation in each division is prescribed in sanitary regulations drawn up by the division surgeon and after approval by the commanding general is issued by him in the form of an order, thereby making compliance an obligation on every one as in the case of any other order. In each regiment a sanitary squad is organized by the regimental surgeon which has jurisdiction over its camp area. The regimental surgeon is required to make a daily sanitary inspection, and the sanitary inspector of the division inspects all organizations of the division, under the supervision of the division surgeon, to insure compliance with the sanitary orders. At the headquarters of the division is a division surgeon, a sanitary inspector and an assistant (Major, Medical Corps) to the division surgeon, to represent him when necessarily absent. Those camp areas not under the jurisdiction of organizations are taken care of by a sanitary squad, under command of the sanitary inspector. Each organization is provided with the prescribed materials for carrying out venereal prophylaxis

and each soldier on enlistment is vaccinated against smallpox and typhoid fever. I do not believe the medical department of militia and volunteer organizations with a knowledge of sanitation equal to that of the medical corps of the regular army, could obtain as good results because the latter prepares to obtain results before taking the field. A medical officer of the army is detailed as a professor of hygiene at the U. S. Military Academy and lectures to the Cadets with the object in view of giving them a knowledge of sanitation sufficient to secure their co-operation, when juniors, and to appreciate the importance of the recommendations of their medical officers on attaining to a position of command. Medical officers at every garrisoned post lecture to the junior line officers on this subject during the period of the garrison school and these line officers are required to pass an examination on hygiene before they are considered qualified for promotion. The enlisted men of each garrison are given lectures on hygiene and venereal prophylaxis twice each month. The co-operation secured by dissemination of instruction on this subject, and by this method, is one of the most important factors in the brilliant results obtained since the Spanish-American War. To illustrate this difference in sanitary results between the volunteers and regulars compare the morbidity reports of the 2d Division 7th Army Corps 10,759 strong, in camp at Jacksonville, Fla., 1898, for about 5 months, with regard to typhoid fever, and the 2d Division U. S. Army, 12,000 strong, in camp at Texas City and Galveston for 2½ years did not have a single case of typhoid fever. The climate of both places is about the same and both divisions were in tents.

2. In occupied territory it would be necessary, by house to house inspection, to determine the presence of contagious or infectious diseases. The medical department of the army should work in conjunction with local boards of health, if still performing their functions. Contagious hospitals should be established and Provost Marshals instructed by proper authority to furnish guards. Troops should be kept out of seriously infected towns as far as military necessity permitted. If local civil organization was disrupted it might be necessary to establish a hospital for the surgical assistance of the civil population, and perform such other functions as occasion demanded.

3. The medical personnel of a regiment of infantry consists of one major, 3 captains or lieutenants, 4 non-commissioned, and 20 privates of the Hospital Corps. Each regiment on the march is furnished with an ambulance by an ambulance company for emergency cases, and when filled diagnosis tags affixed to sick or injured would authorize such cases to ride on the wagon trains following the column. Each Hospital Corps private carries emergency supplies in a Hospital Corps pouch, each medical officer's orderly carries an orderly pouch with more complete supplies for the medical officer to use, and each non-commissioned officer an emergency case containing medicines, etc. This equipment furnishes sufficient supplies for sick and injured on the march till camp is reached and they can be transferred to the nearest field hospital if necessary. On reaching camp, one camp infirmary for each brigade is established in a convenient location, and the necessary personnel of medical officers and Hospital Corps are detailed to administer it by the senior medical officer of the brigade. At this infirmary sick call is held to determine whether a soldier should be excused from duty, minor ailments and injuries attended to, and serious cases admitted pending transfer to a field hospital. The other duties with which the medical department is charged can be best illustrated by giving you a demonstration of the lines of medical assistance in battle by means of this schematic drawing. This demonstration will give you a concrete idea of the subject and enable you to clearly understand subsequent references to field units prepared in peace for use in war, and necessity for preparation. After the regiments are deployed and advance into action, the regimental aid station is not established till the regiment is halted by the volume of fire. The regimental surgeon establishes this station, the equipment of which is carried on a pack mule. Each soldier carries on his belt a sterile primary dressing in a sealed metal case and when wounded applies it himself or gets a comrade to do so. The medical and Hospital Corps detachment operate from the regimental aid station and bring to it by litters or otherwise all wounded they can reach during the action or in lulls in the action. There is one of these stations to each regiment. While the wounded are being collected in the regimental aid stations, the Ambulance Company of the brigade establishes as far for-

ward as possible a dressing station, the equipment of which is carried on four pack mules. From this dressing station, the litter-bearer section goes forward and brings the wounded from the regimental stations to the dressing station, where they are given attention and subsequently transferred to a field hospital by the 12 ambulances of this Ambulance Company. The same procedure is carried out in each brigade engaged. The four field hospitals of a division are evacuated by a transport column to the two evacuation hospitals of the line of communication, allowed to each division. Each has a capacity of 324 beds with 14 medical officers and 153 enlisted men of the Hospital Corps. Hospital trains transport the patients from the evacuation hospitals to the base hospital, one of which is allowed for each division. The base hospital has a capacity of 500 beds, 19 medical officers, one dentist, 153 enlisted men of the Hospital Corps, and 46 female nurses. The hospital train composed of 10 cars has a capacity of 200 beds and a personnel of 3 medical officers and 27 enlisted men of the Hospital Corps, and are allowed in proportion of one to each division. From the base hospital the wounded who will probably not recover during the campaign are sent by rail to general hospitals into the interior or by hospital ships to the home country. We have no hospital ships; by modifying the equipment of thirty regular regimental hospitals we can equip with hospital supplies 30 chartered transports. Ten of these modified regimental hospitals are located at Fort Monroe, Va., ten at the New York Depot, and ten at Fort Crockett, Galveston, Texas, as these are strategic points. A convalescent camp is established at the base in connection with the base hospital to relieve congestion. One Medical Supply Depot is established at the base for each division with a personnel of two medical officers and 15 Hospital Corps men. The regimental medical supplies are replenished after a battle from the camp infirmaries which carry a reserve and the camp infirmaries draw on the base medical depot or an advanced medical depot. In the United States we have a general medical supply depot in New York, St. Louis and San Francisco. It is perfectly evident that the slightly wounded who can furnish their own transportation would reach the field hospital of a division before the seriously wounded. The

slightly wounded are usually 40 per cent. of the casualties and would simply swamp these hospitals. To avoid this the battle order usually specifies where a station for slightly wounded will be established and such cases are directed there. The four camp infirmaries may be utilized for this purpose during a battle and the personnel drawn from the train sanitary detachment consisting of 3 medical officers and 12 enlisted men of the Hospital Corps. For the general hospitals in the interior the post hospitals would be utilized and their capacity increased by building pavilion wards. The plans for the base hospitals and the pavilion wards are now on file in the surgeon general's office and are of material that can be purchased in any community and erected by ordinary carpenters. The personnel for these general hospitals would be determined by their capacity. We have four general hospitals of a permanent character in operation in the United States now. The Walter Reed Hospital near Washington, D. C., The Letterman Hospital at San Francisco, The Army and Navy General Hospital at Hot Springs, Ark., for special cases and The Fort Bayard Hospital for cases of tuberculosis.

Recruiting Stations. It is evident, that on a sudden expansion from peace to war the recruiting stations should be equipped for immediate operation. To avoid delay the equipment for physical examinations and identification work, vaccination against typhoid and smallpox, sufficient for 200 stations has been collected and is held in readiness by the medical department.

First Aid Packages. At the front every officer and soldier, combatant and sanitary, is required to carry on his belt a first aid package. There are on hand 373,000 first aid packages and 17,000 shell wound packets and contractors promise to deliver 10,000 per day of the former after procuring the brass for the cases, which will require about three weeks.

Hospital Corps and Orderly Pouches. These pouches carried by the privates first class and privates of the Hospital Corps are now furnished to all in service and in addition a small supply is on hand at depots. It is not the intention to add to this supply as it is contemplated to do away with them and substitute a belt with pockets. The orderly pouch particularly is unsatisfactory for mounted service.

Emergency Cases. These are carried by the non-commissioned officers of the Hospital Corps. The non-commissioned officers of the regular army

Brassards. In war time each non-combatant is required to wear on the left arm a red cross brassard, and all not uniformed, such as mem-

FRONT

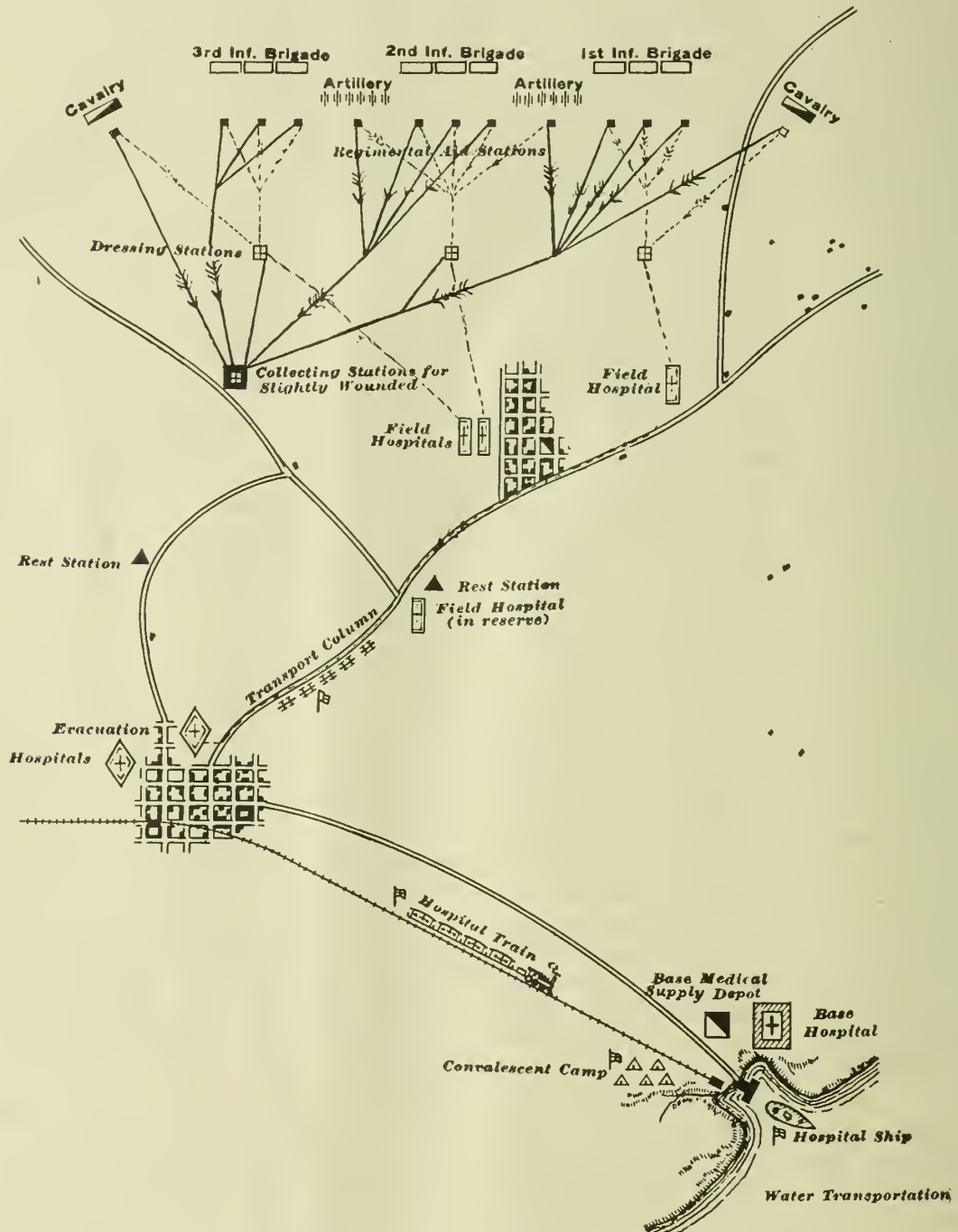


Fig. 1. Lines of Medical Assistance in Battle From Front to Rear

and militia in service are now supplied with them and a supply is kept on hand in the medical supply depots for first needs.

bers of the Red Cross Association operating with the Army, are required to wear one stamped and have a certificate of identification. There are

18,000 on hand, but they could be manufactured quickly in sufficient numbers.

To determine what we would need in personnel and field units in time of war it is necessary to assume what organization would be the most probable in war to give an approximate idea, and to compare it with what we have, and to also assume that the entire regular army would be mobilized in the United States to defend the home country without regard to the oversea possessions. The authorized strength of the regular army is 111,305 and the hypothesis is to expand it to a force of 200,000 men whose normal organization would be 8 infantry divisions and 3 cavalry divisions together with the auxiliary troops pertaining to field armies and armies. There are 129,000 militia and if expanded to a strength of 200,000 and organized similarly to the regular contingent would give a first line of defense of 400,000 troops.

THE REGULAR ARMY CONTINGENT.

Medical Personnel. With an army of 200,000 the sick and wounded would never be less than 10 per cent., which would require 20,000 beds and with each base hospital of 500 beds, 40 such base hospitals would be required. Bearing this in mind the following medical personnel would be required for the 8 infantry divisions and 3 cavalry divisions provided there was a single line of communications:

At the front.....	955
Line of Communications.....	320
At base hospitals.....	760
<hr/>	
Total.....	2,035

The above table shows that in war we need 1 per cent. of medical officers. There are in regular medical corps 444, which is nearly 4 per thousand of the recently authorized strength of 111,305 combatants. This recent increase of the regular army did not bring a corresponding increase in the proportion of medical officers. In the reorganization of the army in 1908 the medical corps was put at 7 per thousand which was sufficient in peace, but this reorganization was on a basis of 65,000. Since then the army has been increased to first 92,973, and now to an authorized strength of 111,305 without any corresponding increase in the medical corps. The Hay bill now before Congress provides for 7 per

thousand the required proportion in peace, and the Chamberlain bill which provides for 5.3 per thousand in peace. As to what will be adopted by Congress at the date of this writing is in the lap of the gods. Having, therefore, not sufficient regular officers to perform the required duties in peace, 109 of the Medical Reserve Corps and 15 Contract Surgeons have been called into service. The number of regular officers now provided is insufficient to provide inspector-instructors to properly train the medical officers of the militia and this should be a matter of interest and thought for the entire medical profession of this country which cannot afford to have the medical profession lowered in public estimation by a breakdown in medico-military lines, owing to lack of trained medical officers as occurred in the Spanish-American War. In this connection I desire to read to you the resolutions passed by the Southern Medical Association at Dallas, Texas, November 8-11, 1915:

COPY OF RESOLUTIONS PASSED BY THE SOUTHERN MEDICAL ASSOCIATION, AT DALLAS, TEXAS, NOVEMBER 8-11, 1915.

WHEREAS, The President and the Honorable Secretary of War have announced in the public press that a scheme for the reorganization of the Army will be presented to Congress at its coming session, which will materially increase the military establishment, and

WHEREAS, We recall the indignant protests and criticisms of the Nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

WHEREAS, It is known that this failure was due to the lack of a sufficient number of medical officers in the regular army and a means for increasing the medical establishment at the outbreak of war, and

WHEREAS, In spite of the lessons of the Spanish-American War, which were fresh in mind in the reorganization of the Army in 1901, the Medical Department was not properly increased, and no provision was made for its expansion in time of emergency, and

WHEREAS, to correct the defects in the 1901 legislation, subsequent legislation was necessary in which the medical profession of the United States was called on to assist; therefore, be it

Resolved, By the Southern Medical Association, in session at Dallas, Texas, that the Secretary of War be petitioned to make adequate provision in the reorganization of the Army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision should aggregate a proportion of medical officers of, at least, seventy-five hundredths of one per cent. of the enlisted strength of the army, of such numbers as the Surgeon-

General of the Army may deem necessary, and be it further

Resolved, That the Secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of war, by calling into service in the Medical Reserve Corps physicians from civil life, who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

Realizing the deficiencies in number of the Medical Corps, the Surgeon-General's office has brought about the organization of the Medical Reserve Corps. There are 1,460 members constituting this reserve for the regular army. In order to give them some training for their prospective duties, camps of instruction were held in the summer of 1915 which were attended by 173. Seven hundred of the total number have received some instruction either at camp or through a correspondence course carried on by the Army Field Service and Correspondence School for medical officers at Fort Leavenworth, Kan. More than half the number have received no instruction whatever. Unfortunately members of the Medical Reserve Corps attending these encampments pay the cost of their transportation and receive no pay, whereas militia officers have their expenses paid by the government and receive a salary in addition during the period of the encampment. It would seem the Medical Reserve Corps should secure equal consideration, otherwise the numbers attending will be small because of the expense.

DENTAL CORPS.

The Dental Corps of the army consists of 1st Lieutenants and Acting Dental Surgeons. The original appointment is as Acting Dental Surgeon and on passing a satisfactory examination after 3 years' service, promotion to 1st Lieutenant ensues. The law allows one per thousand of strength. There are in service 37 Dental Surgeons and 36 Acting Dental Surgeons. This number is less than 1 per thousand of the present army strength, but it is believed this corps could be sufficiently expanded in time of war to meet necessities. The Surgeon-General exercises jurisdiction over this corps.

FEMALE NURSE CORPS.

The law provides for one superintendent of nurses with a salary of \$1,800, chief nurses, nurses, and reserve nurses. Reserve nurses are

called into service as required. No difficulty would be experienced in securing the number of trained female nurses in time of war required. They are only used at the fixed hospitals such as base and general hospitals. They are only employed at present in the general hospitals and such post hospitals as have somewhat the character of general hospitals, as post hospitals used as base hospitals for troops in the field, such as at present are on duty on the Mexican border.

HOSPITAL CORPS.

Consists of sergeants 1st class, sergeants, corporals, acting cooks, privates 1st class and privates, and the total number allowed by law at present is 5,388. The present ratio of Hospital Corps men to combatants is 4.8 per cent. In time of peace 5 per cent are needed, and in time of war 10 per cent., owing to the large number of sick and wounded in modern war. At the ratio of 5 per cent. our army of regulars of 200,000 would require 10,000. It would seem advisable that the law should provide a definite ratio of 5 per cent. in peace to be increased to 10 per cent. in war. To give some idea of the large number of sick in armies under circumstances which prohibit the employment of a trained medical personnel, dispatches of November 15, 1915, stated that 90,000 sick had been taken from the single area of the Gallipoli Peninsula. If we allow 5 per cent. of Hospital Corps men on expanding to war strength there would be 10,000 required and there are 5,388. There must be several thousand hospital corps men who have returned to civil life and no doubt a large proportion of them would join the colors on the outbreak of war. Any deficiency would have to be made up by enlisting recruits and subsequently instructing them. War is waged on so huge a scale now, that a nation such as ours, which has never been prepared in peace for war, cannot now do so without serious sacrifices with regard to national expense. To do so would be so novel to the American people that they could with difficulty become reconciled to its extent, but national existence may depend on it, so we should be willing to pay the price.

From the above figures it is evident that for any army of 200,000 regulars there would be needed 2,035 medical officers. That taking every medical officer in service at home and abroad we would have 444, with all the Medical Reserve

Corps called into service 1,460, total, 1,903. There would still be lacking 132. These 2,035 are the number required in the theatre of operations and makes no allowance for the medical service of home territory, including administration, supply depots, general hospitals now established and the additional general hospitals that it will be necessary to establish, convalescent hospitals, recruit depots, concentration camps, hospital trains, hospital ships, and for the medical service of the immobile part of the army, the coast artillery. The coast line of the United States is divided into the North Atlantic Coast artillery district, the South Atlantic and the Pacific Coast artillery districts. Unfortunately too, members of the Medical Reserve Corps, which was organized as a reserve for the regular army, are permitted to hold commissions in the organized militia, and the volunteers when raised. About ninety members of the Medical Reserve hold commissions in the militia and would not be available, and what number would prefer the rank of major and captain in the volunteers rather than that of 1st lieutenant in the Medical Reserve Corps is a matter of speculation. However, both factors would materially detract from the 1,460 carried on the official list. In time of war it is a very conservative estimate to allow one per cent. of medical officers. Now let us consider briefly what material there is on hand compared with what will be needed to carry on the important service of the zone of the advance and line of communications. If the former breaks down, then the conditions described in Surgeon General Hammond's letter will recur:

FIELD UNITS REQUIRED—ZONE OF THE ADVANCE.

Field hospital companies for eight infantry divisions	32
Field hospital companies for three cavalry divisions	3
Total field hospital companies.....	35
Ambulance companies for eight infantry divisions.	32
Ambulance companies for three cavalry divisions..	9
Evacuation ambulance companies for eleven divisions	11
Total ambulance companies required.....	52
Camp infirmaries for eight infantry divisions.....	32

AVAILABLE FOR THE ZONE OF THE ADVANCE.

Field. Seven field hospital companies are organized and in service, six of them in the United

States. Thirty-five would be required. There are on hand in the medical supply depots in the United States and our foreign possessions the material, exclusive of personnel, wagons, animals and harness, 53 field hospitals, which with the seven organized would make 60. The regular contingent then of 200,000 could spare the material of 25 field hospitals to the contingent of 200,000 militia if required. This material is assembled in units and can be forwarded complete with the exceptions noted, on telegraphic authority. Each of the 30 regiments of infantry now organized would bring one wagon complete for use of the medical department. So would each of the 15 regiments of cavalry and the 6 regiments of field artillery, to the mobilization camp, making 51 wagons. These would be sufficient to equip with transportation the 32 camp infirmaries of the 8 infantry divisions, and have just enough wagons for 3 field hospitals (less 2 wagons) of the 28 to be supplied (35—7 organized = 28). So after war began under present conditions wagons, mules and harness for 25 field hospitals would have to be procured for the regular army. These items are furnished by the quartermaster corps, not by the medical corps.

Ambulance Companies. There are organized and in service 8 ambulance companies. For the eleven divisions 41 would be required. The materials, exclusive of personnel, wagons, mules, harness and ambulances, for 53 are stored in depots at home and in our foreign possessions. This would permit the material of 20 ambulance companies for the use of the militia if it were not that the material of 11 ambulance companies would be required for the 11 evacuation ambulance companies on the line of communications. Therefore, only 9 could be spared for the militia contingent. All the transportation, allowed in the Tables of Organization, to be brought from the posts, except ambulances complete, has been used up in equipping the camp infirmaries and 3 field hospitals. Each regiment would bring two ambulances complete, making 102, enough to equip 8½ ambulance companies out of the 33 still to be equipped. There are on hand, however, 427 mule ambulanees. Deducting the 102 brought from posts, there would be enough ambulances for the 11 divisions, but there would be a shortage of 124 to equip the 11 evacuation ambulance companies of the line of communications. But 24½ companies would have no mules

or harness, and these would have to be furnished at the mobilization camp by the quartermaster's department by purchase or otherwise, together with the three wagons, mules, and harness required by each of 33 ambulance companies in the Zone of advance not equipped with same. (41 required — 8 organized = 33.)

The engineer battalions, signal corps battalions, etc., would not bring any transportation from their stations for the use of the medical department, except one pack mule. This is the most favorable presentation of conditions that can be made, where in our need we concentrated for the defense of our homes all our resources. We could not, however, very well abandon the Panama Canal, or if attack came from the west, the Hawaiian Islands, which constitute our outpost for the defense of our Pacific Coast. In this connection it is of interest to consider the number of medical officers of the medical corps, usually present in the United States and abroad. In the hearing before the Committee of Military Affairs, House of Representatives, January 25, 26 and 27, 1915, it was brought out that there are 292 medical officers on duty in the United States and 139 on duty in our oversea possessions. So on the outbreak of war we could count on as a rule only 292 well instructed medical officers, and twelve others undergoing instruction at the Army Medical School at present.

Evacuation Hospitals. In allowing two evacuation hospitals to each division 22 would be required. The material of 24 is at present collected in medical supply depots in the United States and possessions. This would equip the 11 divisions of regulars and sufficient for one division of the militia contingent.

Base Hospitals. Allowing one base hospital for a division, 11 would be required for the regulars. There are on hand three; two in the United States and one in the Philippines. These hospitals have a capacity of 500 beds, and allowing 10 per cent. of sick and wounded 40 would be required for 200,000 men. It would seem that nearly four per division is required. While the material for only three is on hand, it is believed it could be purchased in open market without much difficulty on a declaration of war.

Hospital Railroad Trains. Approximately 500 litter fittings for converting freight cars into suitable transports for wounded are on hand. These will equip two trains of about ten cars

each; allowing one hospital train for each division eleven would be required.

THE MILITIA.

MEDICAL CORPS.

There are approximately 129,000 militia in the United States. When expanded to war strength with the same organization as the 200,000 men of the regular army into 8 infantry divisions and 3 cavalry divisions, and assuming 10 per cent. of sick and wounded, 2,035 medical officers would be required. There are 852 medical officers of the militia in the United States. For the zone of the advance about 955 would be required. There is no organized reserve for the medical department of the militia and the deficiencies would have to be made up from uninstructed physicians. Out of a total of 852 over one-fifth, 156 were not inspected in 1915, making it impossible to state as to their preparedness for field service. In order to increase the efficiency of the medical officers of the medical corps of the militia, 6 inspector-instructors from the medical corps of the Army have been detailed. Owing to the small number of medical officers available, each one of the six inspector-instructors has charge of the militia of several states. Additional instruction is given in the summer camps and by a correspondence course previously referred to. The degree of efficiency differs widely in the different states. In many states but a short period of preparation would be needed to make the sanitary troops ready for field service. In others, however, much time and labor would be required.

HOSPITAL CORPS.

Allowing 5 per cent. Hospital Corps men, the 200,000 would require 10,000. There are in service 3,997. There would be required for the zone of the advance alone 7,952. These sanitary organizations would have to be recruited up to proper strength at the same time with the line organizations, and would necessarily be in large part uninstructed.

FIELD UNITS.

Field Hospitals. The number of field hospital companies required would be 35, at war strength; there are organized with the militia 28 at peace strength. The material organized into units, and in medical supply depots, is sufficient

to supply the seven additional required and leave 18 in reserve, exclusive of personnel, harness, wagons and mules.

Ambulance Companies. The number of ambulance companies required will be 41. There are in service with the militia 18, and 9 units of material could be supplied from supply depots, making 27. There will be nothing on hand for the 14 short or for the 11 Evacuation Ambulance Companies of the 11 divisions. Only 18 out of 41 would have ambulances, mules, harness or personnel.

CAMP INFIRMARIES.

There are ample regimental infirmaries in service and in depots to supply both the militia and regulars. These regimental infirmaries are brought to the camp of mobilization by each regiment. With the exception of four for each division to be used as camp infirmaries, they are turned over to the Medical Supply Officer of the mobilization camp and stored there. There would be no transportation for the four camp infirmaries for each militia division, as they do not bring transportation with each regiment for the use of the medical department, as the regular regiments do on leaving their posts, and as is prescribed by the Tables of Organization, because they do not have it to bring. This transportation would have to be purchased. The shortage for the regular and militia contingent when mobilized would be as follows, for the 400,000 men:

Medical Officers.	Hospital Corps.	Wagons.	Ambulances.	Draft Mules.	Pack.	Riding Horses.
1,245	10,615	426	532	3,738	224	1,984

While the line of the army is being recruited up to war strength, this personnel and equipment will have to be obtained. It would require a considerable period of time. As regards the transportation no allowance is made for wagons, etc., necessary for the use of Evacuation or Base Hospitals. The Tables of Organization does not allow for any. I am of the opinion that at least two wagons would be required for each evacuation hospital, and three for a base hospital to do the necessary hauling of rations and other supplies. In the table given each Evacuation Ambulance Company is allowed 12 ambulances and 48 mules only.

The Dodge Commission, investigating the conduct of the Spanish-American War, came to the conclusion that the deficiencies of the Medical

Department were attributable to the lack of sufficient appropriations by Congress. It recommended that supplies be kept on hand for 16 divisions for one year. This has not been practicable for lack of funds. Medical supplies are on hand for about 9 divisions of infantry and 3 of cavalry, such as litters, instrument cases, etc., for about six months, as the wear and tear is very great. If we were cut off from the sea, the only articles that are essential that could not be produced in our own country are quinine, opium and coca leaves. Many articles, such as rubber goods, cannot be kept in stock because they deteriorate, and also some medicines. These articles subject to deterioration could, however, be purchased in open market in an emergency.

REPORT CARDS.

Individual records of sickness and injury in order that pension claims can be settled with justice to the individual and the government, are kept on a card, a printed form which is filled out with the soldier's surname, Christian name, rank, company and regiment or corps, age, race, nationality, length of service, date of admission, source of admission, cause of admission. Whether admitted to hospital or quarters. Whether in line of duty or not. Complications, disposition, name of the hospital, and initialed by the medical officer making the report. On the back of the card is the number of days lost from sickness in hospital and quarters for each month of the year, and the total. These cards collectively constitute the register of patients and each case is given a register number. They are made out for each case admitted to sick report by the surgeon of each unit except the station for the slightly wounded. They are prepared in duplicate. One set for the retained records of the surgeon making the report and called Record Cards. The original set forwarded to the Surgeon General at the end of each month are called Report Cards. When a patient is transferred to a field hospital or other hospital he is accompanied by the same kind of a card, which is then called a Transfer Card. The report cards are accompanied by a Report Sheet giving the period of the report, and the mean number of officers, and enlisted men, white and colored separately, and Filipinos, Porto Ricans and Indian Scouts. Also a nominal check list of the names of all cases admitted during the month. The Report Sheet, Form 51, the Nominal

Check List, Form 51-a, and the Report Cards constitute the Report of Sick and Wounded of the army and is the basis on which the Surgeon General's office makes up the annual statistics of the army, and from which individual pension claims are adjudicated with respect to the individual and the government.

THE AMERICAN RED CROSS.

An important adjunct of the medical mechanism for war in the United States is the American Red Cross. It is the official aid society authorized by Congress and by the proclamation of the President of the United States of August 22, 1911. This society really constitutes a reserve for the army and navy in war. It supplies and mans the rest stations along the line of communications which are established to take care of sick and wounded en route to the base and who are unable to continue the journey. The Red Cross has now assumed a more important function under the management of Colonel J. R. Kean, Medical Corps, U. S. Army, as U. S. Army Director General of Military Relief, American Red Cross. It has taken the form of the organization of field units assimilated to the base hospital of our army of 500 beds. Its personnel consists of 26 officers, 50 nurses, 25 nurses' aids, 80 male administrative personnel and 15 civilian employees. All of the medical men enrolled in them are given commissions in the Army Medical Reserve Corps; the nurses are enrolled members of the Red Cross Nursing Service. The male administrative personnel of the hospital is required by the enrollment pledge to enlist in the Hospital Corps when called into service. The twenty-five nurses' aids are women who volunteer to serve without pay and have undergone a prescribed course of instruction. The cost of the material of these Red Cross Base Hospitals is \$25,000. The following number of these base hospitals are in course of enrollment: three in New York City, three in Boston, one at Johns Hopkins, Baltimore; one in Cleveland, one in Rochester, N. Y., and one in Grand Rapids, Mich., ten in all. These units will be an important addition in war where our organization is weakest when entering in a war.

CIVIL PHYSICIANS.

The above table shows that after having used all of the medical personnel of the regular army and organized militia there would still be a short-

age in the first line of defense of 1,245 medical men, with no instructed reserve for a second line. This deficiency would have to be made up from the general medical profession of the country. If we went to war with any first-class power we would call out at a minimum at least 2,000,000 men, and allowing one per cent. of doctors, 20,000 would be needed. That number of physicians from civil life would be the minimum. How many of the 145,041 doctors in this country would be of suitable age and school is a matter of speculation. Homeopaths and Eclectics would not find the proper preparations for their school in the government supply tables. Doctors over 45 years of age do not stand the hardships of service at the front very well. The only probable idea of the number of young doctors we can form is from the number of graduates of the regular schools of medicine in the last few years, and we know that they are steadily decreasing in number. In 1904 there were 5,190 graduates of the regular schools in the United States. Whereas in 1915 there were only 3,286, which is a decrease of 36.6 per cent. below 1904. It would seem that some organized patriotic movement should be made by the medical profession of this country to place in the hands of the War Department on the outbreak of war the necessary data to enable it promptly to fill the need of doctors. There is no reserve for the medical department of the militia and in fact there will be a shortage in the first line of defense itself of 1,245 doctors. A reserve should be organized for this purpose, and the medical service for all organizations of the second line of defense will necessarily have to come from the general profession. The reserve of the first line should be between 27 and 45 years of age. An organization should be accomplished through State Medical Societies and branches to furnish the names of those willing to serve. They should, in my opinion, be divided into three classes after the reserve of the first line is supplied, viz., from 27 to 45 of those willing to serve with regimental and field units at the front. Those of 45 to 55 willing to serve in Evacuation and Base Hospitals on the line of communications and the general hospitals in the interior, and those from 55 to 65 or over to remain at home to serve the needs of the civil population. These lists should be corrected by the State societies frequently and the special qualifications should be stated, as general surgeons,

Ophthalmologists, Ear and Nose Specialists, etc., so that they could be promptly fitted into the places where they would do the most good. This is only a tentative plan. War is waged now on so huge a scale that it requires all the resources of a nation, and the medical profession is one of those resources. They should be ready and organized to rally to the colors and to the call of a country's need as promptly as the combatant element, for in case of international trouble they are as certain to be needed. This is but the germ of an idea that I hope may grow so strong as to characterize the medical profession of this country not only as a scientific body, but a patriotic body. Service in the medical corps of armies now is fraught with nearly as much danger to life as in the line, owing to the long range of modern ordnance obliging the doctor to enter well into the danger zone of battle if he is to be of use. During the Russo-Japanese war the loss, in proportion to numbers of the medical department of the Japanese, was second only to the infantry, but

“How can a man die better
Than facing fearful odds,
For the ashes of his sires
And the altars of his gods?”
Federal Building.

RECURRENCE OF SYMPTOMS AFTER
OPERATION FOR GALLSTONE
DISEASE.*

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“It is fit things be stated and considered as they are.”

During the period from January 1, 1910, to January 1, 1916, one thousand and thirty-one operations upon the gall bladder or biliary passages were performed at the German Hospital with a total mortality of 7.18 per cent (74 deaths). The conditions for which operation was done were as follows:

	Recovered.	Died.
Calculus	695	42
Cholecystitis	213	6
Biliary fistula.....	12	3
Stricture common duct.....	7	2
Chronic pancreatitis.....	61	5
Acute pancreatitis.....	3	3
Pancreatic lymphangitis.....	2	..
Carcinoma of the pancreas.....	11	4
Carcinoma of gall bladder.....	4	1
Empyema of gall bladder.....	16	6

*Read before the Chicago Medical Society, April 26, 1916.

Cirrhosis of liver.....	2	1
Adhesions	2	1
Hydrops	1	..
Pericholecystitis	1	..
Drainage of pancreas.....	1	..
	1,031	74

The type of operation and the mortality of each is shown by the following table:

	Operations.	Deaths.
Cholecystectomy	360	36
Cholecystectomy and choledochostomy.....	114	4
Cholecystostomy	427	12
Cholecystostomy and choledochostomy.....	28	4
Cholecystostomy, choledochostomy and pan- creatostomy	1	1
Cholecysto-duodenostomy	35	4
Choledochostomy	63	13
Choledcho-duodenostomy	2	..
Cholecysto-gastrostomy	1	..
	1,031	74

Mortality, 7.18 per cent.

During the same period and included in the above there were 42 cases that had been operated upon previously for the same disease. Five of these had had two previous operations and one had been operated upon three times without relief. The number of operations performed upon these forty-two cases was fifty. The operative mortality in this group was exactly 8 per cent. or approximately the same as in the whole series. The four fatalities were due, in one case, to uncontrollable hemorrhage, in another to the same cause plus leakage from a cholecystoduodenostomy, in the third from toxemia and exhaustion, and in the fourth, which was the case mentioned as having had four operations, death was due to acute pancreatitis on top of carcinoma of the head of that organ. A considerable number of these recurrent cases had not been operated upon by me in the first instance, but I have no doubt that some of my original cases have reached the hands of others of my colleagues for secondary operations, so that it seems likely that under the conditions of surgery prevailing in this period that about 4 per cent. of all cases come to reoperation for persistence or recurrence of symptoms. However that may be, it will be valuable to examine the causes for surgical failures and recurrence of symptoms. The average interval between the first and second operation was 22 months, the longest period being 9 years. Reoperation was done

- within 1 year in.....60 per cent.
- within 2 years in.....12 per cent.
- from 3 to 4 years in.....18 per cent.
- from 4 to 9 years in.....10 per cent.

The conditions found at operation are shown in the following tables:

TABLE 3.

<i>Cases of Recurrence After Primary Cholecystostomy.</i>	
Acute destructive infection involving the common duct....	1
Recurring infection of gall bladder	3
Recurring infection of gall bladder and pancreas.....	4
Stricture of cystic duct.....	2
Stone in cystic duct.....	1
Stones in gall bladder.....	10
Stone or stones in common duct.....	5
Stones in common and hepatic duct.....	1
Carcinoma of pancreas.....	1
Failure to open gall bladder which contained stones.....	1
Adhesions	4

<i>Causes of Recurrence After Cholecystectomy.</i>	
Persistent chronic infection involving pancreas.....	1
Stricture of common duct following operative injury....	1
Stone in common duct.....	1
Stone in hepatic duct.....	1

<i>Causes of Recurrence After Cholecystectomy and Cholecholestomy.</i>	
Stricture of pancreatic portion of duct or duodenal orifice	2
Stone in common duct.....	1
Duodenal fistula (post-operative).....	1

<i>Causes of Recurrence After Cholecystostomy and Cholecholestomy.</i>	
Stone in common duct.....	1

TABLE 4.

<i>Causes of Recurrence After All Operations Combined.</i>	
Stricture of common duct.....	6
Stone or stones in common duct.....	9
Stones in common and hepatic duct.....	1
Stone in hepatic duct.....	1
Stone in cystic duct.....	1
Stones in gall bladder.....	11
Cholecystitis	3
Chronic pancreatitis.....	5
Adhesions	4
Duodenal fistula.....	1
Carcinoma of pancreas.....	1
	42

Twenty-two cases, or slightly more than half, were found to have one or more stones in different locations. In 11 cases, or exactly one-half of the total number, the stone or stones were in the common duct, and in one case each they were found in the hepatic and common duct, in the cystic duct and in the hepatic duct. In the cases showing stones in one or more of the ducts it seems altogether probable that they were overlooked at the original operation, or, possibly in the case of those in the hepatic duct they were beyond the possibility of surgical removal at that time. In 3 cases a single stone was found in the gall bladder. One cannot say whether these single concretions were formed after operation or were overlooked. Those who know the difficulty of emptying the gall bladder completely will readily admit the latter possibility. In the other 8 cases of stones in the gall bladder the number ranged from five to several hundred and in several cases the conclusion was irresistible that they had reformed in that location.

One man had remained well for eight and a half years after cholecystostomy for gallstones. Then for a period of six months he had developed typical symptoms of gallstone disease and at operation he was found to have many stones in the gall bladder and several in the common duct.

One case operated upon by myself two years previously by cholecystostomy for gallstones presented himself again for operation and was found to have a gall bladder absolutely packed with hundreds of stones, a condition that could not have been overlooked at the original operation. Still a third case had had gallstones removed in a Brooklyn hospital nine months previously and at operation showed a strawberry gall bladder containing many stones. It seems probable that this condition, which is now well recognized as an indication for cholecystectomy, had been overlooked and that the stones had reformed in consequence. Another case should be mentioned to illustrate the difficulty of detecting small stones in gall bladders that do not present external evidence of disease. This patient had been explored in another hospital for symptoms of gallstones, but the operator evidently decided that the gall bladder was healthy and contained no calculi. When it was opened, however, numerous minute stones were found.

From these cases it would appear that gallstones are the most common cause of the recurrence or persistence of symptoms after operation. They make their presence known within a year and often within a few days or weeks. They are usually stones that have been overlooked or out of reach, but if the gall bladder has been left, the possibility of reformation of stones cannot be disregarded.

In eight cases the cause of later trouble was either failure to dislodge the infection or a reinfection of the biliary passages and pancreas. Chronic and acute cholecystitis without stones was found in three instances and chronic pancreatitis in five.

I cannot but feel that the percentage of failures from these sources would have been much higher had I not laid great stress upon free and long continued drainage of either the gall bladder or common duct or both in all operations upon the biliary passages. The use of maximum sized tubes which are allowed to remain until they practically fall out has been my rule and nothing has occurred to alter my opinion in this respect. Operative biliary fistulas always close if there is no obstruction to the normal passages and the physiological rest afforded by free drainage is of the utmost value in allowing the tissues to clear away the lurking infection. While we may deplore even these few recurrences of the in-

fective process, it seems to me that we should rather congratulate ourselves upon the infrequency with which this occurs. When we consider the fact that a biliary tract once diseased would naturally constitute a *locus minoris resistentiae* and furthermore observing the great difficulty and unreliability of any known medical measures to sterilize the infected tract the superior results of surgical treatment are apparent.

Stricture of the common duct was met with in six instances. In two they could fairly be attributed to the fact of surgical treatment since in one the duct was accidentally injured during cholecystectomy, and in another a severe local infection caused sloughing of a portion of the duct itself. In the other four cases the condition was secondary to extensive and long continued disease of the duct, such as suppurative and ulcerative cholangitis and might have been obviated by earlier surgery. In two of these cases the site of the stricture was in the pancreatic portion of the duct and at the ampulla of Vater, situations not in any way affected by the procedures of the previous operation. In one of these cases I side-tracked the obstruction by anastomosing the duct above it with the adjacent duodenum. In another case I made an end-to-end anastomosis of the ends of the duct above and below the obstruction, and in the remainder after dilatation, a T-tube was placed in the duct and allowed to remain for several months. I have never tried any of the fancy methods for reconstructing the duct recommended by experimentalists. Dr. Riesman and I have a patient on whom I operated for the third time more than three years ago for a chronic cholangitis. She has been wearing the T-tube ever since, refusing to allow it to be removed, as she is perfectly comfortable with it and fears another recurrence if it should be removed. This illustrates how well the tissues will tolerate the tube and proves that in the event of the necessity of reconstruction of the duct ample time may be given for the formation of a firm fibrous tube and possibly even for its epithelialization.

In one case a small duodenal fistula developed from pressure of a drainage tube. After some months this was closed by operation with satisfactory recovery.

In four cases the only lesion that could be found to account for the symptoms was the presence of adhesions. It must be said, however, that

adhesions, often extensive and dense, were present in every one of the cases. They are part and parcel of the healing process. Naturally they were more marked when infection or operative trauma was greatest. It is a difficult matter to say just what part adhesions play in the production of symptoms. Where they produce definite kinks or obstructions of the stomach, duodenum or intestines it is not so difficult to correlate the mechanical conditions with clinical effects. Where no such evident mechanical factor is present it is hazardous to attribute symptoms to adhesions. Thus, in the case of one individual who had enjoyed complete immunity from symptoms for eight and a half years after cholecystectomy, only to receive a reinfection of the gall bladder with reformation of stones, operation six months later showed numerous and dense old adhesions which were evidently the product of the previous operation yet without creating any disturbance of sensation or function. I have observed so many similar instances that as a rule I do not disturb adhesions when operating unless they are in the way. As a rule they cause no trouble and if disturbed they are sure to reform and probably more dense than before.

As to the rôle of the type of operation in predisposing to recurrences it is evident that more recurrences took place after simple drainage of the gall bladder than when it was removed. Thus, in half of the stone cases recurrence was due to calculi left or reformed in the gall bladder. In one case stones were impacted in the cystic duct and would have been removed by cholecystectomy. When stones are overlooked in the common or hepatic duct it is, of course, clear that the treatment of the gall bladder is of no moment so far as subsequent obstructive symptoms are concerned. In the eight cases noted as simple infective recurrences, namely, cholecystitis and chronic pancreatitis, the gall bladder had been removed in only one. Naturally cholecystitis cannot occur in the absence of the gall bladder, but in the five cases of pancreatitis only one had had a cholecystectomy. This is in line with our newer ideas of the part played by the gall bladder as a chronic focus of infection from which the pancreas is often involved, and while the number of cases is small they serve to support the idea that unless it is needed for side-tracking purposes, it is better to remove the diseased gall bladder when complicated by pancreatitis.

The superiority of cholecystectomy in respect to the freedom from recurrences is rather more than counterbalanced by the higher mortality of the operation. It is worthy of note, however, that my figures do not give a correct idea of the relative dangers, as it was my practice up until very recently to drain all the simple cases and remove the more extensively diseased gall bladders. This would naturally give a higher mortality in the latter group from the greater severity of the condition and duration of the disease. In the same type of cases under good conditions the mortality of cholecystostomy and cholecystectomy do not vary greatly, though removal is still the more dangerous operation.

The causes of recurrent symptoms following operation for gallstone disease are the following:

Late operation and extensive pathology.

Type of operation not adapted to the lesion.

Overlooking stones in the gall bladder or ducts.

Reformation of stones.

Persistence or recurrence of infection of gall bladder, ducts or pancreas.

Insufficient drainage.

Adhesions, especially adherent duodenum, pylorus or stomach.

Internal biliary fistula.

External biliary fistula.

Contraction of papilla of Vater.

Stricture of the common duct.

Stricture of the hepatic duct.

Stricture of the cystic duct.

Chronic pancreatitis, pancreatic lymphangitis and interstitial pancreatitis.

The type of operation done must necessarily influence the result; for example, draining the gall bladder when it should be removed or vice versa; draining the gall bladder externally when it should be drained into the duodenum; failure to drain when there is present a cholangitis, a pancreatic lymphagitis or interstitial pancreatitis; omitting properly to explore the hepatic and the common duct; omitting definitely to determine the patulousness of the cystic duct when draining the gall bladder; failure to recognize a stricture or a growth of the cystic, the hepatic or the common ducts; failure to detect a stricture and to dilate to the normal, the orifice of the **papilla**.

Adhesions are the result of neglected, long-standing pathology. These are directly due to frequent attacks of peritonitis, not recognized as

such, but such, nevertheless, sometimes labeled one or other of the fifty-seven varieties, bilious attacks, stomach cramps, catarrhal jaundice with epigastric distress, and so on. These attacks subside, but the products of the peritoneal inflammation go on to organization, resulting in the adhesions, sometimes disastrous to the proper function of the viscera they hold in their grasp. The subsidence of and recovery of the patient from the attack is cause for congratulations both to the patient and the physician until there is another and still another attack with medical treatment administered during the intervals. Finally, in desperation, the patient is brought to the operating table, when the aseptic scalpel too often reveals a woeful state of affairs in the shape of a stony obstruction of the common duct. This may, perhaps, not give rise to jaundice nor even to hepatic colic in the true sense of the word, because nature has provided for the passage of the greater portion of the bile by side-tracking it in the shape of a cholecysto-gastrostomy or duodenostomy. I have seen this condition in more than one patient dismissed from Carlsbad as cured.

In the presence of dense adhesions, as I have stated, it has been and is my practice to disturb the adhesions as little as possible. Thus, for example, in the case of a stone in the common duct, if it is possible I locate the stone, incise the duct and extract the stone without dividing or severing the adhesions. Unfortunately this cannot always be done, as very often the anatomical landmarks are entirely obscured and it becomes necessary to make a careful dissection in order safely to expose the lesion. In my experience recurrence of adhesions plays a role in the recurrence of the symptoms, for which the original operation was done; furthermore, I know of nothing to prevent the recurrence of adhesions except by covering the raw surfaces by flaps of peritoneum. In other words, if the field of operation is not left with endothelial surface in contact with endothelial surface adhesions will again form. I have tried all of the methods that have been recommended with negative results, except by the sliding of peritoneal flaps, which I regret to say is not always possible.

The most common error in operating for gallstone disease is failure to remove all of the stones. I have many times operated, removing a stone or stones that had evidently been overlooked at a

previous operation. This, however, is not always the fault of the surgeon who performed the original operation. I have many times met with a gall bladder full of stones, with the common, the hepatic and the two primary hepatic ducts also filled with stones. It is not always possible to clear the two primary branches of the hepatic duct. Again, in the attempt to remove a stone or stones from the hepatic duct, one or more may be displaced upward and beyond the reach of the surgeon. This can result in subsequent obstruction of the common duct and call for a second operation later. It is not possible in all of these cases to clear the smaller ducts of the liver and thus prevent the descent of the stones into the common duct, where they may subsequently cause obstruction. I could cite several interesting cases of this type upon which I have operated two or three times before they remained permanently well. The establishing of complete drainage is essential for a permanent cure. We must not fight shy of opening the common or the hepatic duct if necessary, for the purpose of securing drainage.

Internal biliary fistula in the shape of a cholecysto-gastrostomy, cholecysto-duodenostomy, and cholecysto-colostomy can be corrected only by severing the respective viscera and repairing the openings. In the majority of instances of this kind it may probably be best to excise the gall-bladder on account of disease of the same and to close the opening in the stomach, the duodenum or the colon, as the case may be. If the fistula be due to stone obstructing the common, or the hepatic duct it must be dealt with as seems best. Where the obstruction is caused merely by stone the operation is usually simple, but if it is due to a stricture or to a neoplasm, a careful plastic operation will be required. In dealing with either of the latter conditions resection and anastomosis of the ends of the ducts or of the proximal end to the duodenum should be done, or, if this is impossible, a rubber tube may be introduced into either end of the duct when, if it has not been possible to unite the divided ends of the duct at one or more points, the gap can be filled in with the great omentum. I have been successful in bringing about a satisfactory result in two patients by using this procedure.

A stricture of the common duct with a normal gall bladder and with a patulous cystic duct, may be corrected by a cholecysto-duodenostomy.

The treatment of external fistula, if the fistula is simply a gall-bladder one, due, as is usually the case to a stone obstructing the cystic duct, excision of the gall-bladder is the best practice, and if due to stricture, excision is the only proper operation.

Pancreatic lymphangitis and chronic interstitial pancreatitis are amenable to treatment by drainage only. It may be established by making an external gall-bladder fistula or by a cholecysto-duodenostomy or by draining the common duct.

Contraction of the papilla of Vater, with consequent obstruction of the common duct calls for dilatation of the papilla carried out gradually through an incision into the duct. The most common cause of this condition is an extension of inflammation of the common duct to the papilla resulting in inflammatory swelling or stricture. When this is followed by a recurrence of the contraction it will be necessary to reoperate by making a short circuit between the gall-bladder and the duodenum. The simplest operation to do is a cholecysto-gastrostomy, but I do not think as well of this method as I do of cholecysto-duodenostomy. I admit the connection between the gall-bladder and the stomach is the simpler to make. I have seen the common duct dilated to the size of a small first and under these conditions a choledcho-duodenostomy is the safer operation.

An adherent duodenum is capable of occasioning symptoms which may be interpreted as ulcer. An attempt should be made to separate an adherent duodenum or stomach, but if this cannot be safely done, a gastroenterostomy will best be done.

Acute and chronic cholangitis are amenable to treatment only by bile drainage, best carried out by introducing a rubber T-tube into the common duct. Acute cholangitis is seldom seen except as a complication of infection of the gall-bladder or the common duct and more often due to the presence of stone obstruction. Acute cholangitis, due solely to inflammatory obstruction, is comparatively rare; it does not differ from lithogenous obstructive cholangitis and likewise calls for the establishment of free drainage.

Drainage can be made through the gall-bladder, if the cystic duct be patulous, and the condition of the gall-bladder warrants drainage. Drainage through the common duct is much more efficient and more reliable, and better suited therefore

to bring about prompt results than is drainage of the gall-bladder. I have seen too many cases of the type I am now speaking of not to be firmly convinced that this is the only reliable means of preventing suppurative cholangitis with multiple foci of infection involving the entire liver, a combination which spells death. These acute cases are desperate ones, showing rapid pulse, high temperature, severe chills, etc., and drainage if it is expected to do any good must be instituted promptly. A case of this character occurring in my experience several years ago that made a great impression upon my mind was one of streptococcal infection of the gall-bladder in a man of middle age, sick 24 hours, presenting the characteristic symptoms plus a mild jaundice. Complete recovery followed drainage. A culture of the small amount of purulent material in the gall-bladder, made by the late Dr. A. O. J. Kelly, showed pure streptococcus. Further comment as to what would have happened to this man without operation is unnecessary.

This operation is particularly indicated in chronic cholangitis of long or short standing, with more or less jaundice. I will illustrate my remarks by stating a case occurring in the practice of my friend and colleague, Dr. David Riesman:

The patient referred to earlier in this paper, was a woman in middle life, with chronic gallstone disease, with a history of hepatic colic, jaundice, etc. At operation—a cholecystectomy at the hands of the writer—calculous cholecystitis was found with no evidence of common duct obstruction or pancreatic involvement. The patient recovered and remained well for six months, when she again became sick, complaining of general malaise, indisposition, loss of appetite, epigastric distress after eating, gradual loss of flesh, slight jaundice, etc.

Second operation: Incision of the common duct; small single rubber tube, the end of which was engaged in the hepatic duct. Prompt recovery from operation. The liver at the time of operation was enlarged, not markedly so, however, but tougher than normal to the touch. The patient remained well for about nine months, when recurrence of the same set of symptoms as complained of before the last operation appeared in an aggravated form, severe rigors, high temperature, profuse sweats, mild jaundice, no pain. This continued until Dr. Riesman again asked me to see the patient with him, at which time he agreed with me that another operation was imperative. The common duct was again opened and a rubber T-tube introduced. The liver at this time was enlarged, presenting a streaked appearance, its consistency

being tougher to the touch than at the second operation. No obstruction of the common duct or disease of the pancreas was found. A singular remark that the patient made to me when she came to the hospital for the third operation was that the sweating at night was so profuse that she would wear six nightgowns in one night. Great improvement followed the operation, there were no further chills, sweats, practically no temperature. It is now over three years since the last operation and the patient remains well and continues to wear the tube.

What more striking benefit of drainage could I cite? What could give more force to the position I take in favor of surgical versus medical treatment in this type of case?

This is not only true of gallstone disease, but of duodenal ulcer as well and of other conditions with which you are familiar. Would that I could impress my hearers with the importance of the physician studying with the surgeon that which is exposed when opening the abdomen of their patients to the light of day, the only way by which the greatest good can be accomplished to the greatest number.

We are forced to admit that the study of dead pathology is of far less moment in acquiring a correct and working knowledge than is the study of the pathology in the living. We are again forced to admit that the information gained in recent years that has shed so much light upon diseases of the abdomen hitherto unknown has been due to the knowledge acquired in the studies of the opened living abdomen. Prior to the latter period, with few exceptions, we only knew the terminal stages of intra-abdominal disease. Since the advent of the present means of studying these diseases, we have familiarized ourselves with all of the stages of the disease from their initial to the terminal stage. This can truly be said to have been a kaleidoscopic period that has resulted in so great good to suffering mankind.

Myeloiditis, kidney degeneration, degeneration of the blood vessels, diabetes, hematogenous infection, to say nothing of many other conditions, are the consequence of neglected toxemia the result of gallstone disease. The two most common sources of infection are the appendix and gall bladder, the pathology of the appendix and gall bladder having much in common.

I want to take advantage of this opportunity, when addressing a body of distinguished Chicago doctors, to pay my respects and at the same

time to credit your colleague and fellow townsman, Dr. Babcock, for having done so much in the way of pioneer work upon myocardial changes the result of gallstone disease. I have come to fear this and kidney degeneration as the two most important factors in the prognosis of these cases after operation.

Diseases of the biliary passages are surgical and not medical conditions; until this is instilled into the minds of our medical colleagues, recurrence of symptoms following operations will continue to be as important a factor in the future life of patients operated on as it is at the present time.

The root of the chief evils that befall the biliary passages is primarily infection and secondarily obstruction. If the biliary passages never became infected the latter would never occur, except more rarely from congenital malformations or neoplasms. The order of sequence, therefore, is infection, inflammation, inflammatory swelling, obstruction and retention of bile, and often precipitation of its contents forming calculi.

In trying to account for the recurrence of symptoms following operation for gallstone disease it is evident to the writer that the most common preventable cause is late operation—operation done when the disease has already brought about certain changes in the tissues primarily attacked and later in distant tissues, with changes and deformities that the surgeon cannot always correct so as to bring about a return to normal conditions. I am sure this is not thoroughly appreciated except by those whose experience with this class of work is very large.

Why are these operations so often done too late? The answer is the patient's confidence in medicine; in the cures supposed to be brought about at the various springs such as Carlsbad and others; the fear of operation; and the advice of the physician who believes that many of the affections we are discussing are amenable to medical means. The arguments for and against medical versus surgical treatment must be based on pathological and anatomical facts as learned from making autopsies on the living and on the dead.

Frequent excursions into the upper right abdominal quadrant in the presence of pathological conditions naturally make the observer more or less familiar with the underlying cause of the pathology and in this wise enables him to corre-

late the symptoms and clinical findings in arriving at a correct conclusion or a correct diagnosis. This is illustrated by a hackneyed expression that to become a good diagnostician of gallstone disease it is as essential to know its pathological anatomy as it is to go into the water to learn to swim. Hence the expression that the surgeon walks by sight and the physician by faith. The internist makes his deductions by working on the outside while the surgeon works on the inside. Knowing the difficulties of the surgeon in reaching a correct conclusion, how insurmountable must be the difficulties confronting those whose deductions must be drawn from external signs alone. The surgeon who is daily making excursions into the abdominal cavity by his handiwork, renders its walls transparent, as it were, and from a rich experience he can truly say he walks not only by sight, but also by the kind of faith that the old darkey understood when he said, "secin' is believin'."

In spite of all that we have learned of late years concerning bacteria, infection and the various immune bodies by which the body defends itself, no one can deny that the best means for combatting infection still are to be found in the old surgical principles of removal or drainage. Removal can often be accomplished here by cholecystectomy, while drainage suffices to relieve the cholangitis.

Neither vaccination nor serum treatment is applicable to biliary infection; in fact there are no reliable medical measures that will remedy it. The much heralded spring treatment, mud-baths, and various other forms of baths prescribed with the idea of causing metabolic changes for the betterment of the condition, can only be designated as temporizing measures.

This so-called medical treatment, including changes of scene, of climate, bath treatment, diet, cholagogues and mineral aperient waters may perhaps bring about a reduction of the inflammation and thus make the soil less favorable for the multiplication and the virulence of the bacteria and by reducing the inflammation reduce the inflammatory swelling and thus lessen the degree of obstruction that would otherwise occur. This is the only possible good they can accomplish and explains the common occurrence of gallstones since we know that their formation is due to a mild infection resulting in prolonged irritation. If the gall bladder mucosa is fertilized in

the above manner there will be a good crop of gallstones; in other words, a good harvest, for as the greatest of all books tells us, that "as ye sow so shall ye reap." It must be remembered that all infections of the gall bladder is an interstitial infection, thus offering the lymphatics the opportunity to carry the infectious products to the pancreas and its lymphatics. Are not microorganisms, if deadly, more to be feared than war? We can prevent the latter by being in every sense prepared, but we cannot prevent the entrance of bacteria into the biliary and other passages of the body. I think I have said enough to convince every right-thinking professional man and woman of the soundness of the surgical side of this question. The conservative treatment, therefore, in the average case is the means of laying a foundation for intractable disease of the liver, the pancreatic lymphatics and the pancreas. This sort of foundation may be as disastrous in its consequences as that of the siege gun, which demonstrated its power in demolishing the Belgian forts. Therefore, those who advocate and practice conservative treatment of gallstone disease must be classed as pacifists and not as defenders of the flag and destroyers of the enemy.

A STUDY OF THE PHYSIO-MECHANICAL FUNCTION OF THE FAUCIAL TONSIL.*

NOTE: In this monograph the term "tonsil" will be employed to designate lymphatic tissue and capsule together as a single organ.

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The study described in this monograph was undertaken for the purpose of throwing light on certain observations and certain quandaries which had arisen in the course of the practice of the authors. They had come gradually to realize that the appearance of tonsillectomized throats as observed from time to time, had often indicated anything but ideal anatomical results, and in certain instances had pointed to unmistakable impairment of the depressor palatal muscles. A few cases had been met with in which the speak-

ing voice had, following tonsillectomy, been seriously and permanently impaired. A few published reports had mentioned impairment of the singing voice as well. The articles of Dr. G. Hudson Makuen and of Dr. Thos. R. French had made an impression. And perhaps more than all else a feeling that the exclusively radical attitude of the profession with reference to operation on the tonsils of children, in view of the fact that the dangers from such operation to the possible later development of the voice for artistic purposes remained as yet unsettled, was at least open to serious question. It seemed to them that the parents of children and the children themselves both possessed an inherent right to expect from the medical profession who cared for the children, in any procedure carried out for the child's health, certainly full consideration of a function which might later turn out to be of inestimable value to the child, and of great importance to society as a whole.

Earlier in the history of the operation of tonsillectomy one of the authors of this article had expressed himself as believing that the preservation of the function of the depressor palatal muscles, and so of the capabilities of voice development following tonsillectomy, was dependent upon carefulness and delicacy of technic in the performance of the operation. But in spite of the recent great advances made in respect to technic the deformities to the throat following tonsillectomy are giving no certain indication of diminishing. While undoubtedly they may be aggravated by crudeness of technic, or by lack of operative skill, yet these deformities evidently are preventable neither by manner of operation nor by delicacy of technic. Dr. Makuen has forcibly pointed out cases of deformity of serious importance occurring in the hands of the most skillful operators.* The authors of this article can emphasize these observations from cases which they also have studied. In individual instances one may, by studying the end results of operations which he knows to have been done with great care and with great delicacy as to technic, witness a most surprising resulting picture of throat deformity.

In the systematic examination of tonsillectomized throats one has it forced upon him that

*Read before the Chicago Laryngological and Otological Society, March 21, 1916.

**"Relation of the Tonsil Operation to the Soft Palate and Voice," G. Hudson Makuen, M. D., Transactions of the American Laryngological Association, 1911.

in most instances something has resulted to the throat besides the mere removal of a tonsillar mass. Not in all but in a very large proportion there is presented quite an altered anatomical picture. The relative regularity of this picture of deformity is of itself alone a most striking fact and sufficient of itself to indicate the probable existence of a definite function of the tonsil with reference to the lower palatal muscles. If such a definite function exists, one would expect the deformities which resulted from total extirpation of the tonsil to present a certain tendency to uniformity in the manner of impairment of the action of the palatoglossus and palatopharyngeus muscles, and this uniformity to be directly traceable to the deprivation of these muscles of a definite accomplishment with reference to their action performed previous to operation by the removed tonsil.

The authors are well aware of the incompleteness of the following study. They especially regret that up to this time they have not been able to obtain a cadaver upon which the anatomical results of tonsillectomy could be studied. But in spite of incompleteness they feel warranted in presenting their findings at this time, if for no other reason than that others may be encouraged to take up the subject for further study.

The manner of presentation of the matter in hand will be, to discuss, first, the relationship of the tonsil to each of the depressor palatal muscles as shown by anatomical study; second, to point out the presumptive effect of depriving either muscle of the aid of the tonsil, and, third, to tabulate the corresponding facts as observed on tonsillectomized throats.

In the throats studied anatomically, we find only minor variations in the relation of the tonsil to the pillar muscles. Whether important variations may at times occur would require dissection of many throats. We have dissected five tonsils. From the standpoint of the investigation in question, the extirpated tonsil is deceptive, since such a tonsil, if its capsule and mucous membrane covering remain intact, is by the pulling of these coverings bunched into a ball-like mass. In the throat, however, the border of what may well be called the floor of the tonsil, i. e., that part which lies against the lateral wall, tends to flatness, and may be tucked into narrow places where narrow padding is required. This floor presents definite border limitations, except-

ing below, where it becomes a part of the fascia bearing that part of Waldeyer's ring of lymphatic tissue which passes downward into the laryngopharynx. Above and anteriorly the curved border of the floor parallels essentially the palatoglossus muscle. Following the border from below upwards, it lies between the palatoglossus and the superior constrictor, but drops below the palatoglossus as the latter approaches the soft palate.

The border curves downward at the palate and then parallels the edge of the palatopharyngeus at a short distance from this edge until the muscle enters the body of the pharyngeal wall. The attachments of the capsule to the palatopharyngeus are relatively short, and as one passes downwards into the laryngopharynx they become so short that separation is often impossible without bringing away muscle fibre. The floor of the tonsil spreads itself out over the superior constrictor from which it is separated by a loose areolar tissue. The relation of the tonsil to this tissue is one of contiguity rather than of continuity; and yet, in one tonsil of the five examined, a thin, broad plate of connective tissue passes downwards along the inner surface of the superior constrictor and, overlapping the outer surface of the capsule of the tonsil, merges into its structure. In that one case the impression is directly given that the tonsillar capsule constitutes an elaboration of the intrapharyngeal aponeurosis, as is believed by Descamps, Patterson, Makuen and others. The impression is fully confirmed as one follows the capsule into the laryngopharynx, where its direct continuation unquestionably does become the intrapharyngeal aponeurosis. Removal of the capsule exposes the bared surfaces of palatoglossus and palatopharyngeus muscles, and often also of the superior constrictor, exactly as muscles are exposed more posteriorly and lower down by removal of the aponeurosis. Moreover, the elaboration of the tonsil into a structure having for its purpose the direction and protection of muscle structures, as shall be seen later, is characteristic of intermuscular connective tissue everywhere in the body. And yet, considering lymphatic tissue and capsule together this elaboration has become so complex and purposeful as to constitute an organ of itself, a combined connective tissue—lymphatic tissue, pad-like organ, for certain definite purposes having to do on its physical side with the complicated muscular movements of this region.

RELATION OF THE TONSIL TO THE PALATOGLOSSUS MUSCLE.¹

The palatoglossus muscle is in the cases examined small and relatively delicate, although according to Dr. Makuen it becomes large in singers.² It passes in a slightly outwardly course from the side of the soft palate, downwards and forwards to its insertion at the side of the posterior part of the mouth portion of the tongue. Its position at the side of the throat is chiefly determined by its close attachment throughout its course to the under surface of a bridge of mucous membrane constituting the covering of the anterior pillar. The bridge-like character of this layer of mucous membrane is due to its passage over from the lateral wall of the throat onto the surface of the tonsil, where it either merges

lateral wall is a small irregular unoccupied space, bounded below by the upper anterior border of the capsule of the tonsil, and above by the bridge of (removed) mucous membrane. To the outside is a loose fascia covering the inner surface of the superior constrictor. The antero-superior border of the capsule (with its accompanying lymphatic tissue) presses upwards from below into this bridged space so as to be, to a greater or lesser degree, between the palatoglossus and the superior constrictor muscles. It is attached to the palatoglossus quite closely by short strands of connective tissues, while to the superior constrictor the connecting bands are longer. Thus the palatoglossus muscle is encased in a canal determined by the superior constrictor, the capsule of the tonsil and the mucous membrane

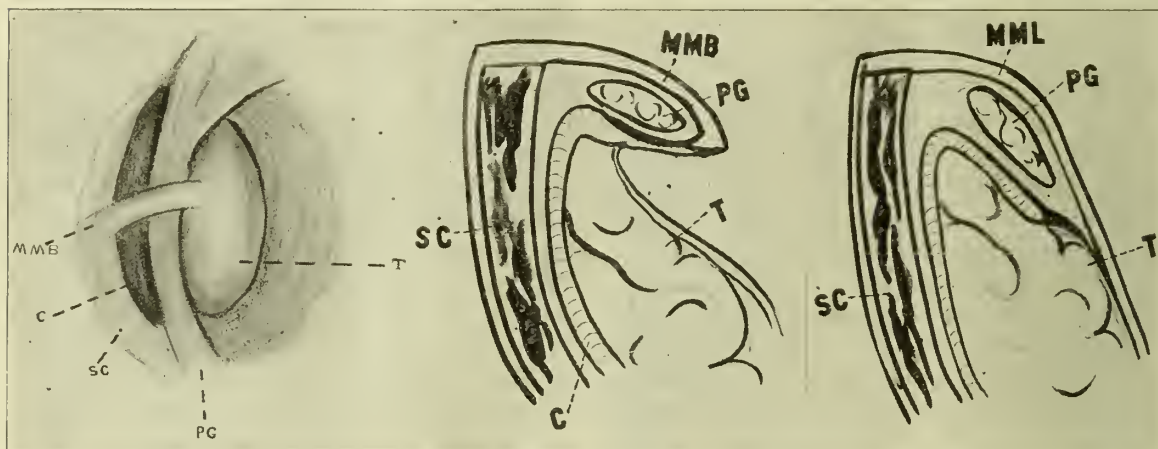


Fig. I

Fig. II A

Fig. II B

Fig. I. Drawing from dissection, showing relations of palato-glossus muscle. P. G., palato-glossus; T, tonsil; C, antero-superior border of capsule of tonsil; SC, superior constrictor muscle; MMB, a section of the "mucous membrane bridge," which elsewhere in the drawing has been removed.

Figure II, A and B. Showing diagrammatically in cross section the structures and relations which determine the action of the palato-glossus. In A the amount of tonsillar lymphatic tissue is small, in B large; T, tonsil; PG, palato-glossus muscle; MMB, "mucous membrane bridge"; SC, superior constrictor muscle; C, antero-superior border of capsule of tonsil.

indistinguishably into the mucous membrane covering the surface of the tonsil, or else ends in a fairly well defined border on the surface of that mucous membrane. (Fig. 1). It is to be carefully noted that this bridge of mucous membrane depends on the tonsil for its inner support. (Figs. 2, A and B.) Dissecting up this bridge of mucous membrane one finds the palatoglossus closely attached to its under surface. Between the palatoglossus and the inner surface of the

bridge. Its direction of action is governed chiefly by the outward attachment of the bridge of mucous membrane, which prevents the muscle to a certain degree from straightening towards the lumen of the throat as it becomes shortened in action. The upper anterior border of the tonsil serves to protect the muscle from direct contact with the superior constrictor, especially during the relatively violent movements of swallowing and retching.

As one approaches the soft palate, since the muscle approaches more closely to the lateral wall of the mouth, this bridge of mucous membrane becomes narrower. Here the capsule of

1. In this article, for reasons of simplicity, we have not attempted to differentiate the relative part played by the capsule of the tonsil and the lymphatic tissue in the physical purposes accomplished by the tonsil.

2. Therapeutic Gazette, February 15, 1915.

the tonsil does not rise so high as to lie between the palatoglossus and the lateral wall.

The dependence of the palatoglossus on the tonsil may be understood when we consider the situation of the muscle with the tonsil removed. (Figure 3, A and B.) Not only has the inner support to the bridge of mucous membrane been removed, but with it also the border of the tonsil which separated the palatoglossus from the superior constrictor muscle. The layer of mucous membrane supporting the palatoglossus has now, while still bearing the muscle, been transformed into an overhanging ledge. Nature's delicately complex plan for obtaining a perfect action of the muscle has been rudely undermined. The muscle is now in much the same predicament as a ship with a hopelessly injured rudder in a stormy sea and lying in the midst of a jagged rocky shore. The muscle, like the ship, is des-

the perfection of action of the superior constrictor must be at any rate to some degree impaired. If the ledge of mucous membrane be both narrow and stiff and if it lie in a favorable direction, these conditions may possibly save the muscle from the rocks of adhesion against the outer wall, even though the muscle cannot be saved from the inevitable scar tissue contraction and the retraction resulting from the almost inevitable sagging of the ledge. (Figure 4, A, B, C.)

By reason of the lack of supportive capability of the ledge of mucous membrane, or by reason of reparative or inflammatory swelling following the operation of tonsillectomy, or by reason of the traumatism resulting from the violence of the movements of swallowing and retching, or by reason of these influences combined, contact between this mucous membrane ledge and the outer

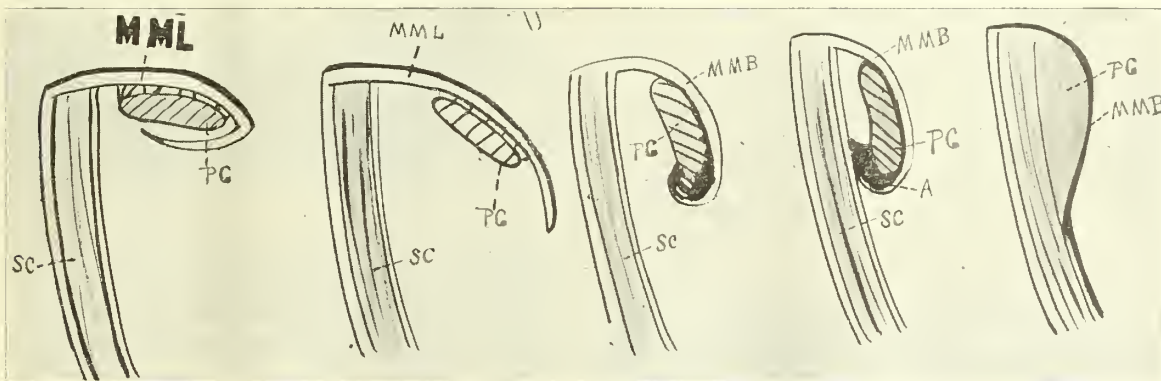


Fig. III A

Fig. III B

Fig. IV A

Fig. IV B

Fig. IV C

Figure III, A and B. Showing the predicament of the palato-glossus muscle after the tonsil has been extirpated. These figures correspond respectively to A and B of Figure II. PG, palato-glossus; MML, "mucous membrane ledge"; SC, superior constrictor muscle.

Figure IV, A, B, C. Showing the possible final fates of the palato-glossus following total extirpation of the tonsil. A, retraction of "mucous membrane ledge" with the palato-glossus; B, palato-glossus adherent to outer wall; C, identity of PG and "mucous membrane ledge" completely lost in a mass of adherent scar tissue; PG, palato-glossus; SC, superior constrictor; MMB, "mucous membrane ledge."

tinued to be seriously shaken at the best, since its perfection of action cannot be hoped for excepting under essentially natural aiding conditions. The degree of the impairment of its function will depend on the strength of the mucous membrane ledge, on the extent of the dropping of the ledge from its former position, on the formation of scar tissue in and upon the muscle, and on the place and extent of adhesions formed between the muscle or ledge and the outer wall.

With the expanding effect of the tonsil removed, the breadth and outward curve of the superior constrictor diminishes (a process which is aided by the contraction of scar tissue); thus

wall is apt to result in permanent adhesion. This adhesion might be slight or heavy, might extend over a small portion of the linear course of the ledge, either anterior or posterior, or might be complete, in which last case the palatoglossus would be lost in an adherent linear scar throughout its entire course. In case of partial adhesion a part of function of the muscle would be retained. Adhesion posteriorly in the vicinity of the soft palate would be more serious to the function of the palatoglossus than adhesion anteriorly or even near the middle of its course. If adhesion occurred to the palate and should a part of the function of the muscle be retained, nevertheless

the direction of even the partial action remaining would be so extremely altered outwardly as to be relatively ineffective; and, even worse, if resulting scar tissue pulled too hard, the neighboring palatopharyngeus might be pulled with the soft palate over against the outer wall. (Figures 5, 6, 7, 8, 9.)

THE RELATION OF THE TONSIL TO THE PALATOPHARYNGEUS MUSCLE.

The exit of the palatopharyngeus muscle from the soft palate occurs in close vicinity to, indeed is nearly identical with, the place of exit of the palatoglossus; but the two muscles upon emerging from the palate begin at once to diverge the one from the other. The size of the angle of divergence of these muscles is of considerable importance and varies approximately from thirty to fifty degrees. The palatopharyngeus is, relatively to the palatoglossus, a much larger and stronger muscle. It is flattened antero-posteriorly to a fan-like shape, and, extending at its lateral borders to the outer wall, serves as a continuation of the general surface of the soft palate downwards on each side. It passes downwards and backwards to a point opposite the base of the tongue, where it merges into the general muscular mass coursing along the postero-lateral sur-

face of the pharynx. In this study we shall not attempt to follow the muscle in its lower pharyngeal and laryngeal relations.

The tonsil appears to serve the palatopharyngeus in two important respects. In order to appreciate the first of these one should realize the thinness and feebleness of the bared curtain of muscle, as well as the fact that the lateral attachments of the muscle are fixed, while its cen-

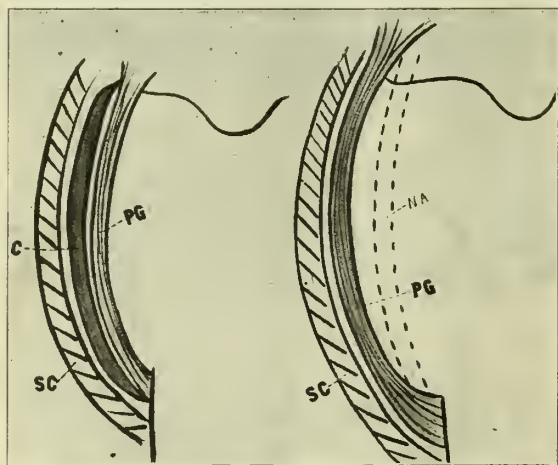


Fig. V

Fig. VI

Figure V. Showing normal direction of action of palato-glossus muscle, and normal relation of antero-superior border of the tonsillar capsule to the palato-glossus and superior constrictor muscle. PG, palato-glossus; C, antero-superior border of tonsillar capsule; SC, superior constrictor.

Figure VI. Showing position of palato-glossus muscle following total extirpation of tonsil, due to retraction of "mucous membrane ledge"; adhesions of palato-glossus to outer wall absent. NA, normal direction of action of palato-glossus; PG, palato-glossus; SC, superior constrictor; A, adhesion.

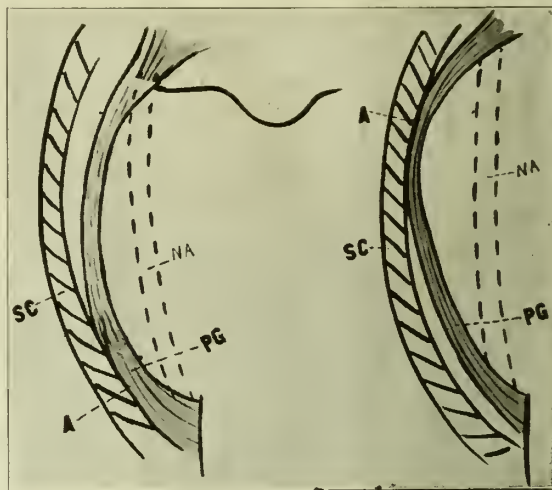


Fig. VII

Fig. VIII

Figure VII. Showing adhesion of palato-glossus to outer wall following total extirpation of tonsil, in anterior portion only. (For lettering see Figure VI.)

Figure VIII. Showing adhesion of palato-glossus to outer wall following total extirpation of tonsil; adhesion at palatal end only. (For lettering see Figure VI.)

tral attachments in the soft palate are to a certain degree movable. The capsule of the tonsil lies against the lateral wall and curving inwards lies also against the anterior surface of the palatopharyngeus muscle. (Figure 10.) Thus the muscle is, as it were, braced with reference to the lateral wall, and thus is fixed in position; otherwise its thinness of structure would cause it to be liable, if subjected to undue muscular stress or to the pulling of inflammatory scar tissue, to sag towards the outer wall. With the tonsil removed the palatopharyngeus inevitably becomes endangered from any force, whether muscular or contraction of scar tissue, pulling the muscle in either direction. Should this lateral displacement result in close adhesions to the outer wall not only might the muscle be impaired in its action or even be entirely prevented from functioning, but more important still, the palate might be so closely held down as to prevent its upward movement on

phonation, in which case a permanent nasalized voice, due to operative rhinolalia aperta, would inevitably result.

The second purpose served by the tonsil to the palatopharyngeus is protective. This protection is most important at two points. The first of these is at the angle formed by the palatoglossus and palatopharyngeus as they emerge from the

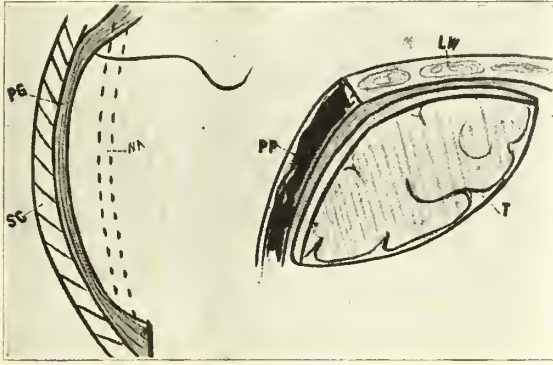


Fig. IX

Fig. X

Figure IX. Showing complete adhesion of palatoglossus to outer wall following extirpation of tonsil. (For lettering see Figure VI.)

Figure X. Showing the manner in which the tonsil acts as a supporting brace to the palato-pharyngeus muscle. LW, lateral wall; PP, palato-pharyngeus muscle; T, tonsil.

palate. Here the tonsil with its mucous membrane covering insinuates itself into the depths of this angle, thus preventing adhesion between the two muscles. Tonsillectomy by removing this protection exposes the muscles to the danger mentioned. The second point at which the protection of the muscle is especially important to the palatopharyngeus is the point of passage of the muscle into the pharyngeal wall. Here pharyngeal surface and muscle necessarily are in close association. If the tonsil were absent either traumatic or inflammatory lesions would be much more likely to produce impairing injury to the muscle. In the operation of tonsillectomy to remove the tonsil from the palatopharyngeus to this low point involves danger of adhesion (Figure 11B), from injury to the tissues (for the capsule is here quite closely adherent) and from the inevitable scar tissue even without such injury. The danger is emphasized when one notes that the same phenomenon of adhesion occurs at this point in a mild degree not uncommonly through inflammatory processes, even in non-tonsillectomized throats. In so far as the layer of mucous membrane which curves from behind the posterior pillar around its free border on to the

anterior surface of the pillar and so on to the surface of the tonsil, is well preserved, will it help to perform the protective work of the tonsil; and its preservation, as has been remarked by others, is important.

Summarizing now the function of the tonsil with reference to the action of the depressor palatal muscles, as indicated anatomically, we find with reference to the palatoglossus muscle:

The tonsil plays with contiguous structures a necessary part in the creation of a channel for the muscle which determines its location, length, direction of action, and protection against injury through movement of adjacent muscles. If the tonsil be extirpated the muscle is left suspended beneath a thin ledge of mucous membrane, which, being unsupported at its inner border, is liable to the following fates: 1, Slight or moderate contraction and retraction of the ledge in both a lengthwise and a lateral direction; 2, marked re-

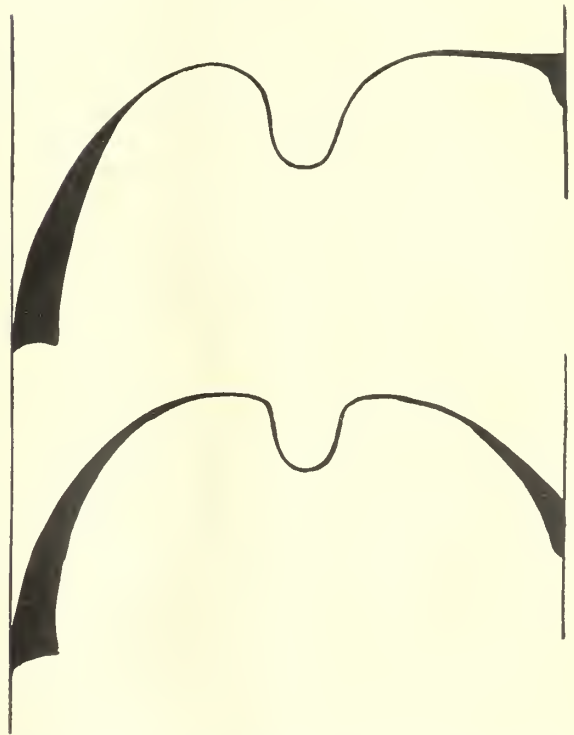


Figure XI. Diagram showing the result of adhesions of the palato-pharyngeus to the outer wall. A, marked; such cases are liable to permanent impairment of the speaking voice. B, moderate; might occur from too low dissection of capsule.

traction in a lateral direction, possibly without adhesion, although adhesion is very likely to occur, in which case there results 3, marked retraction with partial adhesion, either (a) anteriorly,

or (b) posteriorly; or 4, adhesion to the lateral wall throughout its linear course.

With reference to the palatopharyngeus the tonsil plays a part less vital to be sure than that played for the palatoglossus, but nevertheless a part of great importance. Especially is this true in view of the larger size of the muscle and its important relation to the larynx. With the palatoglossus extirpation of the tonsil must result, at any rate theoretically, unless in cases of exceptional anatomy, in impairment of the action of the muscle, which usually must be serious in degree, and must often reach total disability. On the other hand (not considering injury due to scar tissue at the surface of the muscle, the seriousness of which we are unable at this time to estimate) serious impairment to the action of the palatopharyngeus, following tonsillectomy, would result only through direct operative injury to its fibres, or through the dragging of the weakened muscle out of place by the pulling of an adherent anterior pillar, or by the traction of scar tissue or by being tied down by adhesions, or by any two, or by all of these factors combined. (Figure 11, A.) Extirpation of the tonsil might result: 1, in the sagging of the palatopharyngeus toward the outer wall; 2, in moderate adhesions at its point of entrance into the pharyngeal wall; 3, in marked adhesion to the lateral wall, thus largely incapacitating the muscle; 4, in the adhesions so dragging on the soft palate as to prevent its being raised against the pharyngeal wall for phonatory purposes.

STUDY OF TONSILLECTOMIZED THROATS.

We have carefully observed the tonsillectomized results in 43 persons. The ages run from two to forty years; the operators number more than a dozen, most of them thoroughly experienced. We have tabulated the results according to the findings for each of the 83 tonsils operated on. One factor which in tonsillectomy would inevitably tend to produce impairment in the action of the muscles concerned, that of the scar tissue formed on the bared surface of muscles, could not be estimated without microscopic study of tonsillectomized throats, and consequently has not been taken into consideration. The tabulation of the end results of tonsillectomy is as follows:

1. Neither the palatoglossus or palatopharyngeus muscle shows more than slight retraction,

i. e., both muscles appear essentially normal on both sides of the throat: 3 individuals; 7 per cent.

2. Moderate retraction of the mucous membrane ledge (palatoglossus) in a lateral direction without evident adhesion. Partial impairment of action of muscle: 15 tonsils; 18 per cent.

3. Marked retraction of the mucous membrane ledge (palatoglossus) in a lateral direction but without evident adhesion; considerable impairment of muscle: 17 tonsils; 21 per cent. (Figure 6.)

4. Marked retraction of the mucous membrane ledge (palatoglossus) in a lateral direction, with adhesions (a) anteriorly; decided impairment of muscle: 5 tonsils; 6 per cent (Figure 7), and (b) posteriorly; total incapacitating of muscle: 13 tonsils; 15 per cent (Figure 8).

5. Adhesion of the mucous membrane ledge (palatoglossus) throughout its entire linear extent; total incapacitating of muscles: 24 tonsils, 29 per cent (Figure 9).

6. Palatopharyngeus appears normal or nearly normal: 63 tonsils; 74 per cent.

7. Slight or moderate pulling of palatopharyngeus towards lateral wall with adhesion, partial impairment of muscle: 11 tonsils, 13 per cent (Figure 11 B).

8. Marked adhesion of the palatopharyngeus to the lateral wall; decided and possibly total incapacitation of the muscle: 6 tonsils, 7 per cent (Figure 11 A.)

It seems conservative to say that following tonsillectomy, the palatoglossus and palatopharyngeus muscles are never wholly normal in their action. A striking fact concerning the appearance of the pillars in non-tonsillectomized throats is a certain ease and freedom of movement, due to the provision of an abundant amount of tissue allowing for full, easy range of action. This picture in tonsillectomized throats is altered for one of deficiency of tissue and tenseness of action.

The agreement of the findings above of the results of tonsillectomy, with the anatomical indications of the functions of the tonsil with reference to the depressor palatal muscles, need hardly be pointed out. Anatomically the tonsil seems vital to the action of the palatoglossus; and in the tonsillectomized throats the muscle is found to be to the eye practically normal, or at any rate

doubtful, in only 16 per cent; impaired in 45 per cent, and totally incapacitated in 39 per cent. Anatomically the tonsil appears important to the perfection of action, though not vital to the function of the palatopharyngeus, and in the tonsillectomized results it is found normal to the eye in 74 per cent and impaired in 19 per cent.¹

It has seemed to us best in this article to confine ourselves to the one question of the part played by the tonsil in the action of the depressor palatal muscles. The all-important question of danger of tonsillectomy to the voice, whether the speaking or the singing voice, necessarily is closely involved in the matter under discussion. The subject of the voice in this connection is, however, far from simple, and too important to be casually dealt with. It goes without saying that one who undertakes an operation necessarily so hazardous to the action of the depressor palatal muscles, as indicated by the findings just reported, is playing with fire so far as the voice, and especially the singing voice, is concerned. We feel that it might create a wrong impression, however, if we did not at any rate tabulate the voice cases included in the above list of tonsillectomized throats.² Speaking voice apparently unimpaired, 38 individuals, 88 per cent; speaking voice showing rhinolalia aperta (open nasal-ling), due apparently to marked tension exerted on the soft palate by close adhesions of the palatopharyngeus to the lateral wall, 3 individuals, 7 per cent; speaking voice impaired, but apparently not due to the operation, 2 individuals, 5 per cent; singing voice impaired (as to high pitched notes only), 1 individual, 2.5 per cent. It should be added that in two individuals (5 per cent) a "drawing sensation" in the tonsil region was present; the sensation in one case, a young woman of twenty-two years, with much scar tissue, was highly annoying.

SUMMARY AND CONCLUSIONS.

1. The tonsil serves as an absolutely necessary factor in providing a channel for the action of the palatoglossus muscle.

2. The function of the tonsil with reference to the palatopharyngeus is to afford support and

protection of great importance to its normality of action.

3. Tonsillectomy serves to destroy not merely a possible lymphatic function of the tonsil, but also to either disturb or destroy an important physico-mechanical function, one which is capable of being clearly understood.

4. More or less impairment of action of the depressor palatal muscles must occur in practically all cases following tonsillectomy, regardless of the delicacy of operative technic or the particular form of operative procedure adopted; but delicacy of procedure and method of operation are not, of course, to be considered unimportant.

5. To consider the present operation of tonsillectomy as a final settlement of the operative approach to the tonsil is premature and erroneous. The whole tonsil question requires further anatomical, pathological and operative study, in order, if possible, to readjust the operative approach to the organ to the new knowledge which is accumulating.

MILITARY SURGERY—WHAT IS IT?*

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The present interest in war surgery has brought out the astounding fact that there exists a diversity of opinion as regards the character of modern military surgery.

While military medical officers maintain that military surgery is a specialty in a class by itself, most civilian surgeons have expressed themselves as unable to conceive any difference between civil and military surgery, except possibly in so far that military surgery in the field represents a class of emergency surgery on a large scale.

If the military men are right, then the time is ripe for all of us to know the exact scope and character of field surgery, since no one can tell when the civilian of today will be the military surgeon of tomorrow.

While military men are unquestionably in the right in demanding certain knowledge of a military character from one to fit him for a responsible office in a great organization, run along different lines than the organizations to which we have become accustomed in civil life, I shall restrict myself in this contribution to an earnest at-

1. A slight error in percentages results from the fact that in the final tabulation of observations our notes in a few cases were found not to be clear enough to be used.

2. We have left out of our tables entirely one case of badly injured palate with marked impairment of the speaking voice; the case is highly suggestive, however, of the dangers to the voice from so difficult and radical an operation in the hands of the untrained.

*Read before the Chicago Medical Society, May 3, 1916.

tempt to define military surgery in the professional sense only.

Such a definition can be formulated in one or two sentences, but experience having shown that such formulæ convey but vague values, it will be necessary to dwell somewhat at length on some phases of this interesting question.

To begin with, civilians should free themselves from the preconceived notion of the emergency character of field surgery. Except possibly in a sudden and unexpected clash of troops, in a modern war everything is planned beforehand so that there may be many opportunities for "urgent" surgery, but practically never for surgery of the emergency character as commonly understood in civil life.

Next in importance is the appreciation that the entire sanitary service of a military force in the field is there primarily for the purpose of achieving victories. In this the medical corps does not differ from the engineer corps, the signal corps or even the cooks and bakers, for all have their work cut out to enable the combatant troops to maintain fighting efficiency. The notion that medical men are sent to the front in a spirit of humanity to render the best possible skillful aid to the wounded is correct only in an indirect way. To the general who must save the very integrity of his nation by a battle, losses mean only an unavoidable event, and, were it not for the fact that such losses weaken the morale of the fighting troops or would deplete the ranks if the unwounded followed the impulse of rendering assistance to their wounded comrades, the medical department with its wagons and other necessary equipment would be but an impediment hampering the free movement of troops and the ease for ammunition columns to bring up fighting material to the firing line. Practically, then, the medical service is charged to *remove* the wounded and thereby to prevent loss in fighting efficiency. In addition to this, the medical service helps to maintain fighting efficiency by returning to the firing line as quickly as possible as many wounded as possible. From this it can be easily seen that the slightly wounded represent a distinct military asset, because being placed *hors de combat* only temporarily, while those unfortunates likely to be seriously sick for a long time represent a distinct loss with which the men at the front cannot be bothered. It is in the rear,

then, that the humane character of the medical service comes into play.

Bearing in mind the principal object of the sanitary service in the field it is not difficult to appreciate that litters (stretchers), ambulances and hot soup and coffee play a more important role than surgical instruments—nevertheless medical officers are not entirely reduced to mere providers for refreshment and transportation of the wounded, since no transport is conceivable without some surgical preparation. But one need but appreciate that such a transport must be made ready in a very limited time period with a large number of wounded clamoring for it at one and the same time to realize that all dreams of laparotomies, throacotomies, craniectomies, neurorrhaphies, aneurysmorrhaphies and what not, even were they technically possible on the battlefield proper, must vanish for the frontal surgeons as impractical things. Nor would complicated surgery at or near the firing line be humane. When one surgeon has to look after twenty seriously wounded and thirty less seriously wounded in about an hour, it is no mercy to spend a whole hour on one man searching for perforations of the intestine and mesentery and leaving the others to their fate, to say nothing of the question whether such a procedure would not do more harm than good.

Ernst v. Bergmann, one of the greatest surgeons who has grasped the gravity of the problems presented by our struggle with "traumatic epidemics," has formulated for the frontal surgeon what has come to be looked upon by modern military surgeons as a law, that all individualization must be avoided and all work must be pattern like. Pirogoff, Russia's immortal surgical genius, has expressed the same thing in different words: "In war everything is subservient to organization." I would add the remark that all initiative is not forbidden, but whatever initiative is possible must be in the direction of improvisation and organization. Here we have, then, one instance of military surgery in which the absence of all scientific endeavor makes it a science nevertheless.

Organization, then, is the magic wand which makes possible successful military surgery in the field. Professional military men accordingly lay great stress on its importance and young medical officers are thoroughly grounded in it before they are allowed to undertake the more at-

tractive work of tactics and surgical technics. It seems that every neophyte dreads this particular work, whereas in reality nothing can be more easy. One has but to think of certain phases of civil life to get over the first difficulties with ease.

In my work as instructor of my younger comrades I have always begun with a simile which is not an unusual occurrence in every city:

In a large factory located in the outskirts of a city an explosion takes place injuring a large number of workers. Some are seriously wounded, some less so. The aid that will be accorded these sufferers corresponds in many respects to that provided by the medical organization of a large military unit. Note that the corresponding army designations are added in brackets.

The factory surgeon (regimental medical officer) assisted by his nurse (hospital corps soldier) will secure all injured at his office (aid station) and not only dress their wounds, but assort them. Meanwhile the ambulance or ambulances will be coming to the scene (ambulance company). Some of the wounded may be sent back to work, others not seriously hurt to their homes for a brief rest (station for slightly wounded), while the gravely injured will be taken to some hospital in the city (field hospital).

Of course, while we have in the field the same principles of collecting, first-aid and transport, the organization is a little more complicated, due partly to the mobility of troops, partly to the greater number of casualties and principally to the fact that field hospitals are not stationary institutions, but the difference is not so great that one typical example will not bring out the salient characteristics. Let us assume, then, that you accompany a large unit—a mixed brigade—on a definite mission. The accompanying map has been made so simple that it will serve to make the situation as real as it can be made on paper.

The brigade consists of a small cavalry detachment, to serve as scouts or outposts, three regiments of infantry, one battalion of artillery, one ambulance company and one field hospital, and arrives by train at Phalenville January 14, 19—, at about 2 p. m., where it detrains and halts for the night. You are told that the mission of the brigade is to take Dickson City, which is defended by a force about equal in strength to ours, but securely entrenched about half a mile south of the city, as is shown on the map. The

field hospital is directed to take possession of the only hotel in town, but not to unpack its equipment, which is placed on eight large army (escort) wagons, each drawn by four mules. The ambulance company will accompany the troops as far as Frankville, where it will remain until further orders.

While you are interested only in the professional work of the medical men accompanying the brigade, it will be worth while to attend a conference of all medical officers of the brigade

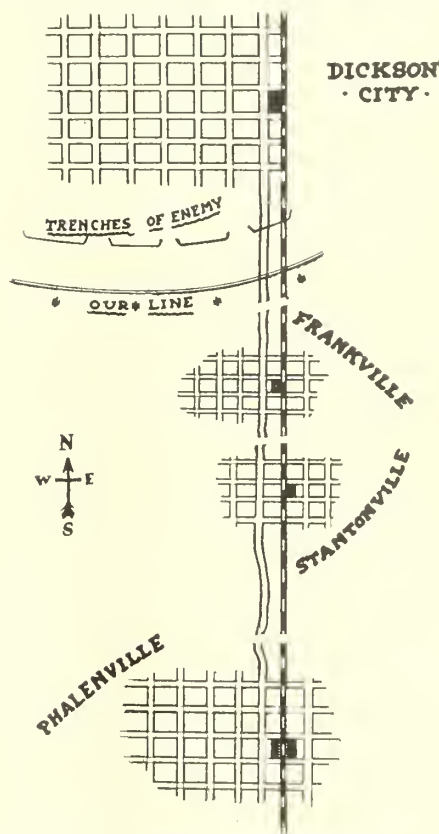


Fig. 1. Map of Battlefield.

during the evening. The brigade surgeon presides and as he has his information direct from the brigadier general he is in a position to outline the work on hand for the morrow. First the map is studied and places sought which will afford cover for regimental aid stations, the medical officer accompanying the artillery will have to be especially careful since artillery draws the enemy's fire. The ambulance company will establish a dressing station at Frankville the moment the first cannon shot is fired, while the field hospital will do nothing without further orders, since developments may be such that either the field hospital will not be opened at all or moved

up closer on the principle that it is easier to carry a mobile institution to the wounded than the wounded to some distant hospital. Incidentally Stantonville is designated as the collecting point for slightly wounded, a young medical officer being appointed in advance to supervise this station the moment word can be sent to go ahead with its establishment.

January 15. The command marched to the front soon after dawn. The ambulance company remained at Frankville and took possession of a church close to the north end of the town. The troops marched on. At about 11 a. m. the first cannon shots were heard and you rush to the front to see what is going on. The infantry troops are still resting behind a huge mountain, but all cannons are shelling the enemy's trenches. The enemy's cannon reply, but none of the shots take effect, since the artillery has selected a favorable place this side of a mountain depression. You notice the surgeon attached to the artillery and his helpers standing away from the cannon under the cover of a sort of cliff. A fire is burning on the ground. He has a box of dressings and other surgical material all in readiness, but so far he has nothing to do.

At 1 p. m. sharp whistle sounds are heard and the three regiments march forward and deploy (spread out) in battle formation, leaving one battalion in the rear as a reserve. The three junior medical officers of each regiment accompany the troops close to the firing line, but each senior regimental surgeon has the surgical boxes and litters placed behind some selected elevation of the ground and is prepared to render aid to the wounded of his unit. As the work will be nearly alike at each of the three regimental aid stations you remain with that of the first regiment nearest the road. The map does not show the undulations of the ground, but neither infantry nor artillery fire can reach you where you are. You notice that the surgeon has built several fires and is boiling coffee and soup over one, that he has put straw on the ground near some trees and that he has placed one of the litters over two adjoining tree stumps; this, he tells you, will be his operating table.

You ask about the aid the junior surgeons will render at the firing line and the surgeon tells you that there will be no other attempt made except to protect the wounds against secondary

infection by the application of the sterile first aid packet, and the arrest of serious hemorrhage.

In about an hour the first wounded are arriving. Some come on foot, some are assisted by members of the hospital corps and of the regimental band, while one man just crawled in dragging his right leg after him. As you make notes you record: 2 wounds of the abdomen, one in upper left quadrant, one in lower right quadrant. Both men receive a hypodermic injection of morphin, a dressing over the wounds of entrance and exit and are placed in a half-sitting position near a fire on the previously laid out straw. A blanket is thrown over them. One begs pitifully for a drink of water but not a hospital corps man holds out his canteen—their instructions have been too explicit for such a mistake to be made.

The man with the helpless leg has a gunshot wound of the middle thigh, resulting in a bad compound fracture. He is dressed and splinted with long pieces of wood taken right from the ground. Two men are brought in who were hit in the head evidently by shrapnel balls, both are injuries at a tangent and the surgeon does no more than dress the wounds. As these men are being attended to more and more wounded come or are brought in so that you are unable to keep up with your notes. Some have dressings on and are near exhaustion—a glance by the surgeon and they are ordered being given some soup or coffee. Most men have gunshot wounds of the upper extremities, but as they have been dressed near the firing line, they are ordered to remain in a group. A man is brought in who is coughing up blood. He has an infantry bullet in his right lung. Morphin and a dressing is all he gets. The surgeon calls your attention to a man who has a small wound of entrance in the back of a hand and an ugly lacerated wound in the *volam manus*. A hospital corps man reports that the lieutenant could not control the hemorrhage and had put on a tourniquet, also the lieutenant asks the major to investigate, for this injury looks like a dum-dum bullet. You are horrified. But the surgeon smiles and tells you that the lieutenant is a new officer, otherwise he would not have made such a statement. All talks of dum-dum bullets are nonsense—the explosive effect is due to the closeness of the range, and indeed the man tells you that he was hit while running in a dash to gain ground against the enemy. You notice that the

tourniquet is applied over the man's tunic and naturally you inquire whether this is due to the cold weather, but you are told that the weather has nothing to do with it, that the tourniquets are always applied that way so that they should not be overlooked by the officers in the next station. The tourniquet is loosened and there is profuse arterial hemorrhage. The artery is caught and clamped with forceps. A ligature seems the proper thing, but the surgeon's fingers are numb from the cold. A few minutes later a compression dressing is applied.

Just about then a terrific sound startles all—indeed, you have already noticed men with parts of faces shot away, others who had a pulpified testicle laid bare, all in shock and moaning, but here you have the yelling of a maniac. The sergeant who has assisted in the assorting of the wounded reports that the man has been shot through the spine; that he is paralyzed in the lower extremities. A brief examination verifies the fact. The sergeant has already given morphin, but that does not seem helpful. Another dose is given, but the man keeps on yelling, begging to be killed. The sergeant is instructed to administer chloroform until the man quiets down. "I pity the men at the field hospital after they get him," the surgeon remarked with sorrowful voice. But there was no time left for sentiment. Another pitiable case diverts you—a shot through the pelvis, shattering the os pubis and undoubtedly seriously injuring the bladder. But no matter what part of the human anatomy was torn open, mutilated and destroyed, you notice but one routine treatment: Arrest of hemorrhage, protection of the wound, splinting of broken bones, morphin for pain and shock and rest and refreshment. But no, just as you have this formulated in your mind as the duty of a regimental surgeon at the aid station, an exception occurs. A man who has been shot through the neck suddenly shows symptoms of apnea. The surgeon whispers to you: edema glottidis. In a thrice iodine is painted over the neck and with few bold strokes of the knife taken from the small surgical pocket case that every surgeon carries in his field belt, the same belt that harbors the bullets for the automatics of the line officers, the trachea is opened and you notice that the air is drawn in with a loud sound. No tracheotomy tube is provided and the wound margins are held apart by

two safety pins, through the interspaces of which a piece of tape is fastened around the neck. The man's life has been saved. A better technique may have been possible in summer time, but even the frost did not stop the medical officer from finishing his operation in a few seconds.

Your regimental surgeon, however, is worried, his station is becoming crowded, darkness is coming on and he would like to see all his seriously wounded under shelter. Just as he is about to send a message to the chief surgeon at brigade headquarters the sergeant shouts "the ambulances!" The surgeon is relieved. And suddenly there is animation at the station. The men with wounds in the upper extremities are directed to form under the charge of a non-commissioned officer of the ambulance company. They will be marched to Stantonville to the station for slightly wounded. You learn that the other regiments have also had serious losses, that even some artillery men have been shot and that the dressing station would be overcrowded if the men who need but little attention beyond rest and food were permitted in Frankville. You only wait to see that the man injured in the spine and the abdominal cases are gently placed on litters and thus carried to Frankville and then you jump on an ambulance to learn what will be done at the dressing station.

By the time you reach Frankville and enter the well lighted, warm church, you meet the chief surgeon, who tells you the good news that the enemy has surrendered the city by flight, that as no pursuit is contemplated the troops are already on their way to the town, that he has directed the burial of the dead and that many wounded both of friend and foe will be taken care of in the small civil hospital in Dickson City by the regimental surgeons, who now will be able to do scientific surgery. You accompany him through the huge ward. The men are being laid out on straw or mattresses taken from the civil population. A few straw-filled ticks are provided by the ambulance company.

In a separate room of the church, the office of the pastor, you find a condition reminding you of an improvised operating room in a private house, but outside of a renewal of blood-soaked dressings, of a readjustment of splints, of catheterization of the patient with the spinal injury and of the poor fellow with the shattered pelvis no other

surgery is undertaken except the raising of a depressed skull fracture.

When you ask why they do not undertake more surgery they point to the bad surroundings, to the lack of suitable equipment and to the fact that they have to move on early in the morning. And finally they ask you to point out to them the cases you think ought to be operated on. You at once recollect the abdominal cases. These men have undoubtedly perforated hollow viscera. They go with you to these patients. They are resting fairly comfortably and resent being disturbed. You are assured that a laparotomy at this time is too early. There are as yet no evidences of peritonitis and the men should be given a chance—maybe they have only small perforations, maybe no perforations at all—at any rate, they do not dare undertake such a delicate operation in which asepsis plays so important a role.

The surgeons point out to you that all these questions will be determined at the field hospital.

You ask when the patients will be transported to the field hospital. They answer you that normally, if a battle were still impending, the ambulances and litters would begin their work after the men have had a little rest, but now that a complete victory has been won the hospital will be brought to Frankville and is already on the march.

Thinking of asepsis you recollect that Frankville when you saw it in daylight is but a small village of 1,000 inhabitants with no hospital facilities, with no hotel, the city hall even being a dirty store, and you ask where the hospital is going to find place. You are asked to take a much-needed rest and wait until morning.

When you awake in the morning a medical officer takes you through the remaining street to the northern end of the town and there you behold an inspiring sight—a tented village, in front of which on a large pole you see the flag of your country and right beneath it a red-cross banner. You enter one of the wards, cot after cot along each side of the huge tent is provided with bedding, pillows, and you see already some of the wounded being put in pajamas. An agreeable warmth permeates the space from small portable stoves. The officers are busy, all dressed in white gowns, rubber gloves on their hands. Dressings are being sterilized, instruments boiled. In an-

other tent designated the dispensary, junior surgeons are taking care of the fracture cases. They are working with plaster-of-paris casts. They are going to take the bladder case first. A perineal urethrotomy and permanent catheterization is the first labor.

During the night one of the abdominal cases got worse. But they will do no more than make a suprapubic incision for drainage and try to bridge him over with Fowler's position and saline enemata. The other man is doing well and will be carefully watched. Later, if fecal abscesses or fistulæ should form, the base hospital surgeons will have to overcome these conditions. Your spinal case will receive moderate extension and a bed to guard against decubitus. They will send him away as soon as possible. All they can do now is to catheterize him and keep him clean on account of his involuntary bowel movements. His prognosis is bad. The lung case is doing fairly well. They are going to strap his chest if there should be an indication for it, otherwise an occasional dose of morphin will be sufficient. They hope to have him evacuated before long, but should infection set in or a pyo- or hemo- or pneumothorax develop before then, they would aspirate or remove a piece of a rib, as the case may be. This is information you receive on your questions. But they have by now all the cases that have been collected from the firing line and as the field hospital can remain as long as is needed until all patients can be evacuated you will have an excellent opportunity to see the scope of surgery in a field hospital. The surgeons caution you, however, not to adopt their particular situation for all field hospitals, since they are practically now in a position to do base hospital work to a limited extent, but that in large battles, when troops may be continually on a move they could remain but a short time and that then all cases must be sent as soon as possible to the base hospital. However, even they would not undertake plastic surgery to repair defects.

Just then a man is brought to the operating table and anesthetized. They are going to do an enucleation of the eye. It is destroyed beyond recovery. Chloroform is used. You, who have dreaded chloroform in your surgical work at home, ask why ether is not used. You are told that here you have another phase of military surgery. Ether is too bulky, hence complicating the

transportation problem. Besides it is inflammable and most field hospitals are not so lucky as to begin their work in the morning, indeed, most operations have to be done in the night under artificial illumination. They point to the top of the tent. From the wooden support dangles a cluster of acetylene lights, which, you are assured, furnish an excellent light, but by an open series of flames.

They tell you that within an hour the hospital will have 204 inmates and that they will be overwhelmed with work, that three surgeons from the ambulance company who will have time to spare will assist them. Pending their arrival you are asked to visit the wards, the kitchen, the mortuary room and the laboratory which has been rigged up in the store tent.

Later you are asked to come to the operating room and you observe during the entire day and part of the night the following operations:

Case 3. Patient received a shrapnel wound through the neck low down laterally. The attendant noted that the man swallowed his coffee with great difficulty and that in a few seconds the dressing was stained with the beverage. Even the soldier diagnosed the case as a large wound of the esophagus. The surgeon dreads infection from the saliva and performs a prophylactic esophagostomy. The patient will be fed a few days per rectum. (Later you learn that the tracheotomized soldier is being treated the same way.)

Case 4. The soldier with the shot through the scrotum is placed on the table. Castration.

Case 5. A soldier with a shrapnel wound in the left groin. During the night there was rather profuse hemorrhage. An attempt was made to control this by tamponade. Another hemorrhage half an hour ago. Exposure of the wounded kidney, which was found to be very badly lacerated. Without doubt nephrectomy was indicated. The surgeon enlarged the external incision in an angle to enable him to reach the hilus with ease, for he insisted on tying every vessel and the ureter separately to avoid the danger of a secondary hemorrhage. If this were not possible you are told a good plan is to leave on a clamp for ten days and tamponade the cavity.

Cases 6, 7, 8. During the afternoon a completely severed radial nerve was dissected out and sutured. Later the ward surgeon reported an-

other patient with a lateral wound in the neck complaining of difficulty of breathing. There was a suspicion of aneurysm (traumatic) and the carotis was tied. Scarcely was this patient off the table when another one was brought in. He looked exsanguinated. A large wound of the popliteal region was bleeding profusely which tamponade by the ward surgeon was unable to control—here the surgeon was unable to locate the bleeding vessel in the wound and the vessel had to be ligated above the wound *in lege artis*.

Then only came a tremendous number of dressings, splinting and an opportunity presented itself to watch the nursing of the soldiers in the wards.

In a few days later we shall meet with a veritable pus epidemic, the surgeon in charge remarked, and then we shall have incisions, arthrotomies, amputations.

Space forbids to enter any further in details. I believe I have shown in a general way the principal characteristics of military surgery in the field. An attempt to discuss all possible situations and all phases of military injuries would mean to present a book on sanitary tactics and a formidable text-book on military surgery.

At the base, of course, corrective surgery comes into its own and here sometimes unusual skill is needed. The protheses, the cure of ankyloses, the surgery of late complications of infections, aneurysmorrhaphies and the like will often tax the combined skill of radiographer, pathologist and operator.

We have then two classes of military surgery: surgery at the front and surgery at the base. The latter differs from civil surgery in that all plastic work is rendered very difficult because of greater tissue destruction, but, of course, the experienced operator will find an opportunity for good use of his surgical skill and ingenuity.

For frontal surgery I believe the following definition best:

Frontal surgery differs from civil surgery in the adoption of a conservatism necessitated through the massive character of the work and the restrictions imposed by environment, plus the application of a simplified technique in vital indications all of which is aimed to be preparatory for subsequent radical or reparative operative therapeutics.

TOXIC DELIRIUM AND ITS MANAGEMENT.*

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KANKAKEE, ILL.

Before taking up for consideration the management of patients presenting a picture of toxic delirium, it has seemed wise to make a few remarks upon the nature of this disorder of body functioning. One reason for so doing is the very widespread tendency to regard the appearance of what are called mental symptoms as evidence of special disease of the mind. Mind is not an organ nor even a material thing, hence it is strictly inaccurate to speak of mental disease. Mind is nothing but the brain in action. The brain is nourished by the same blood and subject to the same intoxications as are the other tissues of the body. The appearance of delirium is only an indication that the brain cells are suffering severely from the poison which is circulating in the blood and does not constitute a different disease condition. Clinical experience has, it is true, taught us that delirium in the course of some of the infectious diseases of the body is generally an index of unfavorable prognosis, but it does not in any way alter the situation as regards the particular disease under treatment. In fact, one may go further and state that in most conditions of intoxication there is evidence of brain involvement in the feeling of lassitude, easy fatigue and malaise, with difficulty of concentration of attention, relatively poor judgment and irritability which, in greater or less degree, are almost constant concomitants of any toxic illness.

The question of the management of a case of delirium is then very similar to that of the treatment of any other symptom, such as pain or fever. It is not a problem of the administration of some specific remedy for a particular disease process. The delirium must be weighed in the light of the special indications it has upon the course of the reaction to the toxin, whatever it be, which is present in the body.

Having decided that delirium represents a condition of damage to brain tissue, we may next consider the question as to the meaning of the term. Perhaps the best method for this purpose is to consider the functions of brain tissue and

to indicate the effects of interference with them by toxins. Brain cells, including their processes, like all other nerve cells, have only two types of function. First comes the maintenance of their own existence, including nutrition and excretion of waste products, and second, the more specific function of conduction of states of excitement. An adequate stimulus applied at any part of the cell starts a condition of nerve activity which then tends to spread in all directions along the cell, a state of functional activity in one portion being an adequate stimulus for the contiguous parts. When brain cells are in functional activity of this specific kind, consciousness is present. Obviously, for the proper performance of the more specific conduction functions, the maintenance of proper metabolism within the cell is essential. Conditions of intoxication are conditions in which there is an abnormal cell metabolism, and consequently a disorder of specific function.

The possibilities in the way of disorder of conduction are only two, viz., increased excitability and diminished excitability. This latter may be carried to the extent of entire ablation of function. Please notice that we have not assumed any secretory or other activity of brain cells. They do not secrete or create thoughts, feelings or volition. They are merely capable of stimulation and the conduction of the state of excitation. This state of excitement "is" consciousness and the particular quality of the state of consciousness existing at any given time is dependent upon the particular combination of brain cells in action at the moment, this particular combination being determined solely by the stimulus which caused the activity. One may justly assume that for full consciousness there is necessary full normal activity of the cells and, conversely, that anything short of full activity means less consciousness or, as it is usually called, lessened clearness of consciousness. Such a disturbance is one of the most prominent features of delirium and is generally described as eluding of consciousness. Stimulation of the brain pathways are not as successful as in health, with the consequence that the states of consciousness are not as clear.

But the various brain pathways are not necessarily equally affected. Certain toxins have a special affinity for certain particular groups of nerve cells. Again, some nerve cells are better able to withstand intoxication than others. With

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these two added factors it is obvious that there may be marked differences in the pictures resulting. To consider the second factor first it may be stated as a general proposition that the better organized, by which one means the more used and earliest developed, pathways are more resistant to damage than the less well organized. Consequently in any diffuse damage to the brain those higher associations which represent the latest acquisitions of both race and individual are the paths that suffer first and most. This means that the more complex and discriminating states of consciousness are less clear than the lower and simpler. The consequence is a failure to correctly discriminate or fully grasp the various changes going on around, and the patient, while able, perhaps, to distinguish correctly single items in a given situation, fails to grasp the meaning as a whole and consequently makes mistakes or, as we say, becomes more or less disoriented and unreliable. The particular form which the misinterpretations (illusions) take is intelligible upon the same basis. The situations which are of most interest to an individual are those which are of the greatest importance in his struggle for existence. They are the ones which go to make up what we call desires and fears. They are hence pathways often used and therefore better organized and more resistant to damage than others belonging to less important situations. Consequently an individual suffering from a general brain intoxication will not only make mistakes in interpreting changes occurring in himself and his environment, but will tend to interpretations which lie in the category of his desires and fears, more especially the latter.

Besides these manifestations of diminished function, there are also phenomena belonging to the realm of hyperexcitability. With any lesion, increased excitability is the first stage of damage. If the damage be progressive, as with continued intoxication, this will later give place to diminished and finally abolished function. It is obvious from what has already been said that since the lower levels of brain activity are the more resistant they will frequently show evidences of hyperexcitability, while the higher have become less capable of stimulation. The lowest levels in the brain are those, the activity of which are simple sensations and it is here that one perceives especially the evidences of hyperexcitability. Stimuli which in health would give rise to

no excitation of the brain and consequently to no sensation, may, under the conditions of intoxication, be adequate. The consequence of this will be the occurrence of sensations without any adequate external stimulus or, in other words, the patient hallucinates. It is in this region especially that there seem to be different affinities for different toxins and we know that some poisons, such as alcohol, have an especial predilection for the visual pathways with consequent visual hallucinations; others, such as cocaine, affect the regions connected with the special sense of the skin resulting in especially marked skin, or haptic, hallucinations, and so forth. The special form which hallucinations assume is again determined by the patient's fears and desires as were his illusions.

Delirium is thus a picture compounded of clouding of consciousness resulting in disorientation and illusion with hallucinations and more or less strongly marked fear and apprehension, the particular form of which depends upon the nature of the toxin and the patient's experience and make-up. There are all degrees between a mild unrest and apprehension up to extreme disorientation and final coma, which means extreme lowering of all cerebral function. Necessarily I have not, by any means, covered the whole ground, but I think enough has been said to indicate the manner in which delirium comes about and to show that it is not necessary to draw upon metaphysics in order to understand what is taking place.

One may ask oneself, why delirium is not a more frequent accompaniment of intoxication. If we disregard the lesser evidences to which I have referred above and which are almost constant, one can only conclude that brain cells must be especially resistant to many toxins. This, indeed, seems to be the case and we tend to regard the easy appearance of delirium under intoxication as an index of poor construction. Certainly many persons with evidences of defective development do show a proneness to delirium and an intolerance for alcohol and other drugs. This, in one way, is of some importance in weighing the significance of delirium in any given case, though it must not be forgotten that defective construction allowing the easy occurrence of such a symptom is also liable to militate against the chances of recovery. It should also lead to especial care to avoid intoxication and to give especially care-

ful consideration to the treatment, when intoxicated, of such individuals.

I do not propose to bother you by attempting to describe the histologic changes which accompany brain intoxications and will merely mention that they are fully as characteristic and obvious as are the changes in the liver, kidney and other cells. It is, however, important to remember that the nervous system differs from all effector organs of the body in the fact that its various cells have different connections from one another and hence that the loss of certain cell groups is a much more serious matter than the destruction of, say, a number of kidney cells. These latter apparently are all exactly alike and much more numerous than is absolutely necessary so that no permanent harm may result from the destruction of even a whole kidney. Possibly that is one of the factors which in evolution has resulted in such a high resistance to damage on the part of nerve cells. Be that as it may, it must be remembered that intoxication of nerve cells carried beyond a certain point, results in the inevitable death of the cell, so that while we are accustomed, and correctly, to regard recovery as the rule from the disorder of brain function known as delirium, provided the patient does not die from the intoxication, yet he does not always fully return to his previous mental level. You are probably all familiar with the deterioration that sometimes follows a severe attack of typhoid fever, the diminution in energy and activity with lessened acumen and business efficiency. Often this is only temporary, lasting several months or a year, and then indicates that many cells have very slowly recovered functional activity but sometimes it is more permanent.

The number of toxins which may give rise to delirious states is very large and their variety great. They may be grouped under the following heads:

1. Drug and food intoxications, e. g., alcohol.
2. Intoxications due to the growth of micro-organisms, e. g., typhoid fever, malaria and pneumonia.
3. Intoxications due to disease of various organs interfering with excretion of products of metabolism, such as uremia, and also those resulting from insufficient nourishment, either general, as in starvation and cardiac insufficiency, or locally in the brain, as in cerebral arteriosclerosis.
4. Strictly autogenous intoxications the nature of which is often very obscure, e. g., accom-

panying conditions of severe emotional upset such as fright. Under this category would probably come the delirious states observed occasionally in hysteria and dementia præcox.

Since the delirium is only a manifestation of intoxication, it is obvious that the treatment in the first place is that of the general state of intoxication and concerns the problem of the elimination and neutralization of the toxin by the administration of proper antidotes. In this phase of the question, which, of course, depends upon the nature of the toxin, I do not propose to enter as it would carry us much too far. But, since delirium is an index of severity of intoxication or low resistance on the part of the patient, certain general principles may be laid down in the way of general treatment of severe intoxications and incidentally these may be considered as measures which may be adopted for purposes of prevention of the severe reaction where this seems indicated. To this may be added certain conditions arising from the fact of delirium. It is to be understood that I am speaking more particularly of cases of prolonged intoxication, with those belonging to the specific fevers more especially in mind, as such are of the greatest practical importance to you as general practitioners.

In every case the measures to be adopted must be determined by a careful study of the case as a whole. It is to be remembered that it is not possible to find remedies which influence just one symptom, leaving the function of other organs, not concerned in its production, unaffected. It is, therefore, not possible to lay down any rules for a routine treatment. Since, in a case of intoxication, we are generally dealing with a temporary disturbance, either because the development of immunity will limit the duration or because the toxin can be withheld and eliminated, the main object of symptomatic management must be to conserve the body strength and avoid death from exhaustion. Certain desiderata stand out with especial prominence in this effort. The reaction of the body and especially the apprehensive restlessness of delirium imply a considerable increase in general metabolism which is especially marked where there is high fever. Sometimes the delirium seems to be the outcome of deficiency in material requisite for the violent metabolic exchanges rather than the immediate consequence of the toxin itself. The administration of more adequate food will, in such cases, result in a

diminution of the reaction even though the intoxication still be present.

In the selection of a suitable diet there is nothing of greater importance than the supply of water. The body contains a large store of materials which, upon emergency, can be utilized as fuel, but there is no reserve of water. In states of this kind blood counts will often reveal a marked concentration of the red cells. In some cases examined at the Psychopathic Institute by Dr. Weisbrenner, he found the cell count in one case as high as seven million per cubic millimeter and it was noted further that the apprehensive restlessness markedly diminished after the administration of normal salt subcutaneously. The cell count dropped at the same time, but the change was only temporary and the administration of water had to be repeated. Patients should, therefore, be encouraged to take plenty of water, and where it is impossible to give enough by mouth, recourse should be had to other methods, by rectum, subcutaneously or intravenously. It seems at least possible that some of the good effects obtained from the use of the prolonged bath are due to absorption of water through the skin.

With regard to food materials, consideration must be given to the fact that the cells of the digestive tract are suffering from the intoxication and that in consequence assimilation of food is impaired. At the same time the fact of delirium almost always means an increased metabolism. It is, therefore, necessary to supply materials in a form in which they are easily absorbed and have a large caloric value. For this reason it is wiser to use liquid food and it may be predigested if necessary. In the dietary carbohydrates, particularly the sugars, will be found to have a special value. In the body they are readily combusted and very materially save nitrogenous constituents which are not so easily absorbed under conditions of intoxication. Under this category comes also the question of the administration of alcohol. Whatever be one's views as to the use of alcohol in ordinary conditions, there can be no question that it is a very readily available source of energy, easily absorbed and readily oxidized, acting in much the same manner as glucose. It nevertheless should, if used at all, be given well diluted. The dosage will necessarily depend upon the habits of the patient in the use of alcohol. To a man unaccustomed to it, 50 c.c. of

alcohol (about 3 oz. of whiskey) during the 24 hours may be considered a full ration. Besides the food value this has also some effect as a drug in that it irritates the mucosa and may thus stimulate appetite and it has also some, though slight in these doses, narcotic effect. It should not be regarded as a cardiac stimulant.

Very often in these cases there is considerable difficulty in getting the patient to take enough food. The resulting starvation and consequent acidosis tend to very seriously increase the restlessness and delirium which in turn mean increased metabolism, and thus the establishment of a vicious circle. Under such conditions resort must be had to other methods of feeding. Rectal feeding with completely predigested materials, including glucose, will often prove efficacious. Feeding by means of the nasal tube may be resorted to if the patient does not fight too much against the procedure, but the effects of a struggle may be sufficient to offset the value of the food. Glucose administered subcutaneously well diluted with normal salt, is at times necessary when it is impossible to give sufficient food in other ways. When hypodermoclysis becomes necessary because the patient does not take sufficient water, it is often wise to add glucose as a nutrient.

I have laid considerable stress upon the food and water question for the reason that it seems to me the most important next to that of specific neutralization of the toxin if that be possible. Starvation is often one of the most important factors in determining the occurrence of a delirium. But there are also certain other remedies to be considered in checking metabolism by diminishing restlessness.

For this purpose the patient should be kept as free as possible from stimulation of all kinds. A quiet room, screened from bright lights, in which there is as little movement as possible, should be selected. A quiet, tactful nurse must, at all times, be on duty, but may be placed away from the patient's line of vision. Such conditions are not easy to obtain in the average home and this may well be sufficient reason for removal to a hospital. These measures alone may be sufficient to keep the restlessness within reasonable bounds. If not, and the condition is likely to persist long enough to render it all-important to secure some rest, recourse may be had to other methods of sedation.

First will come hydrotherapeutic measures. In

the ordinary home prolonged baths are out of the question and in any event must be adopted only with the most careful consideration and supervision because of the danger of collapse. Practically we are limited to the use of tepid sponging and packs. The former has a powerful effect in reducing fever, but because of the exposure which is necessary, is attended with some risks. However, in many febrile cases it will be found useful. I have seen more than one case of collapse in cases of pneumonia from tepid sponging and for that reason am decidedly opposed to its employment as to that of other antipyretics in this disease. Packs can be used either hot or tepid. In the former the patient is covered with blankets to prevent cooling by evaporation. The consequence is that the pack rapidly heats up and causes profuse sweating. This application is decidedly exhausting and should never be employed except in sthenic cases, and cold water or ice should be applied to the head. From 10 to 15 minutes is, as a rule, long enough to produce full effects and the process of heating must be carefully supervised.

In the cool pack, the covering is thin and permits of evaporation so that there is no heating. This procedure is much less severe but still sedative. Cool applications to the head may also be used and watch should be kept to see that the pack does not heat nor cool too rapidly. In such a pack a patient may stay one or two hours and should he fall asleep may be left until he wakes without harm. With adequate evaporation the pack dries in two or three hours.

Should these procedures fail to produce sufficient rest, estimated upon the basis of the probable duration of the illness and the patient's vitality, it may be necessary to employ drugs. But I would insist that proper feeding and supply of water should be first attended to. Drugs are toxins and must, to some extent, still further embarrass the tissues. First, let me warn you concerning the use of morphin, probably the first drug that would come to mind. As in all conditions in which excretion is interfered with, morphin has a much more pronounced effect and is highly dangerous, especially if the doses be repeated. I would, therefore, strongly advise against its use whenever possible.

Probably the most frequently employed drug for such conditions today is hyoscine given hypodermically. I believe that it should not be

combined with morphin, as is often done in these cases. Hyoscine alone has but little effect upon the heart and acts especially in reducing motor restlessness, it does, however, depress respiratory centers and, therefore, should be used with caution. When the restlessness is not so extreme and yet some means to secure sleep seem indicated, there are other drugs which may be employed, often with entire success. Probably the least harmful of all is paraldehyde, objectionable mainly because of its very unpleasant, and often prolonged, odor and taste. Chloral, if it produce sleep in moderate doses, may be safely used, but it is a powerful cardiac depressant in larger doses and should not be administered in cases where there is evidence of cardiac weakness. Sulfonal and trional have but little effect upon the heart and are excellent hypnotics in the absence of pain. Sulfonal requires two or three hours to produce effects on account of its slow absorption, while trional acts rapidly, and it will often be found useful to combine the two in a single dose, the former coming into action when the latter is beginning to wear off. Veronal has been popular but is probably more toxic in that it is less rapidly excreted. Bromides in my experience are of little value in states of delirious intoxication.

One last question in the general management of these cases which must be touched upon is that of the care of the cardio-vascular system. First, let me enter a protest against the indiscriminate use of so-called stimulants, especially strychnin. This last drug is not a true cardiac stimulant at all, but does increase the excitability of the nerve cells of the cord and medulla. When it is realized that, among the conditions postulated above as endangering the patient's chances of recovery, especial stress was laid upon the need to keep metabolic activity within bounds, it should be obvious that any drug, such as strychnin, which tends to increase metabolism, must be used with great caution. It is quite true that often there may be urgent need for increasing temporarily the force of the flagging heart. If this can be accomplished it may be that the patient can be tided over the period of severe intoxication and thus carried to a time when the demands upon the heart will not be so great. The drugs available for this purpose are digitalis and strophanthus, the action of which is slower and more prolonged, ammonium salts, adrenalin and

camphor which act more rapidly but also more temporarily. Hence our chief aids in this direction must be the digitalis group. Into the methods of administration I need not go, but may insist that the possibility of interfering with digestion must be seriously weighed.

The avoidance of bed sores and the need for attention to secure bowel movements may here be passed over, although important, and the necessity for constant supervision of such patients to avoid the dangers of suicide or running away requires only a word of emphasis. But in concluding, I do wish to impress upon you the need for some hospital in which such cases can be treated. The average general hospital cannot adequately care for them. Quite a few reach the State hospitals only after much delay and considerable moving around which cannot fail to militate against recovery. There is now on foot a measure which, although recommended repeatedly during the past few years, has hitherto been deemed impossible to carry out. This concerns the establishment in the heart of Chicago of a State Psychopathic Hospital which would serve as a sorting house for all the insane of Cook County, with full facilities for the treatment of such patients as may be capable of recovery within a short time without commitment to one of the larger State hospitals, including those of which we have been speaking. This hospital would provide, besides this, means for the instruction of physicians in psychiatry, out-patient departments for advising those persons who may be in danger of some mental breakdown and thus securing early consideration, and adequate facilities for the study and investigation of psychiatric problems. The crying need for some such institute must be obvious to you all and I wish to call upon you to use your whole influence to support and carry through the bill which we hope to present before the next General Assembly. It will mean some considerable expenditure of money to secure the necessary site and buildings, but this is small compared with the benefits to be achieved, a fact which no one can better appreciate than the physicians of this city. If conscientiously applied, no man has a greater influence than the doctor, and I wish to leave this appeal with you now with the hope of being able to furnish you with more details later.

THE DIAGNOSIS OF STERILITY.*

V. D. LESPINASSE, M. D.

CHICAGO.

Mr. Duncan's statistics collected in Scotland in the vicinity of Edinburgh, show that from 1 to 6 to 1 to 10 marriages are without issue. Of 503 marriages among the British peerage, 81 were without children after a period of 5 years, or the proportion of 1 to 6 $\frac{2}{7}$ per cent.

The age of the wife is an important factor in the problem of sterility; those that are married between 15 and 19 are about 7 per cent. sterile; those married between 20 and 24 are the most fertile. From the age of 24 the percentage of sterility gradually rises until at the age of 50 it reaches practically 100 per cent.

From a practical point of view, we can take three years as the maximum normal time for the appearance of children. If no children are born within three years the case should be considered one of sterility. This time, however, is subject to some error, as 7 per cent. of fertile couples bear their first children after three years of marriage. As the age of the wife increases, the interval of time from marriage to the appearance of the first child increases, ranging from 9.7 per cent. at the age of 15 to 19 up to 15.6 per cent. at the age of 25 to 39. From the above data, we can state that the diagnosis of sterility should be made on any couple that have been married three years and have no children and have used no means to prevent conception. In determining the cause of sterility, we should take into account the following conditions: 1. obstructions in the sexual tract of the male; 2. obstructions in the sexual tract of the female, and 3, absolute failure of, or imperfect development of, the essential male elements; 4, absolute failure of, or imperfect development of, the essential female elements; 5, alterations in the secretions of the female sexual tract; so that her secretions are destructive to the life of the spermatozoa.

When confronted with a presumably sterile couple one should obtain a careful medical history of both individuals; paying particular attention to anemia, gonorrhea, mumps, tuberculosis, exposure to different sorts of electricity, abdominal diseases, trauma to the testicles and to any disease, injury or bodily conformation that would

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tend to indicate some disturbance in the glands of internal secretion. It is my practice to study the male first, as the male secretions are easily available and relatively easily studied.

The physical properties of the semen are noted, paying particular attention to the consistency. A normal semen coagulates as soon as discharged and then gradually becomes liquid again, this process taking from ten minutes to hours, depending on the various factors. Exposure to air seems to hasten the liquefaction of the coagulum. Most azoospermia semens have little, if any, clotting ability and are quite thin.

Next we examine the specimen for spermatozoa. If they are absent we have located the trouble in the male and then should investigate along chapters 1 and 3. If spermatozoa are present and the specimen is less than two hours old, they should show considerable motion. If motility is absent, we have another factor in the sterility. Next the morphology of the sperm should be carefully studied. If we find sperms present, they should be examined as to their motility and morphology. A specimen that shows large numbers of deformed sperm is undoubtedly a sterile specimen. These deformities of the sperm are usually much enlarged heads, double heads, double tails on an enlarged head and these sperms are rarely seen to move. On the other side we may have a very small head with a short tail, or a small head with a short tail that is curved into a "U" shape. The normal sperm head takes the blue hematoxylin stain. Immature sperm takes the eosin stain; hence a sperm that stains pink with the eosin is a sterile sperm. This is relatively rare.

On the side of the wife, she should have a thorough medical and gynecological examination. The medical examination should pay particular attention to anemia and fat. It is well known that fat women are less likely to conceive than others. Many of these fat types are cases of hypo-thyroidism and examination will disclose some slight goiter or they may be cases of hypopituitarism. To diagnose these they should be given a sugar tolerance test together with a blood pressure reading. The gynecological examination should be thorough and include the passage of the impregnating catheter through the cervix into the fundus of the uterus. Naturally, this will determine the presence or absence of infantile uterus, versions and flexions and the presence or absence of tumors in the fundus, tubes or broad

ligaments. If any tumor is found that definitely obstructs the cervix or both tubes, naturally we have discovered the cause of the sterility.

In regard to versions and flexions, as the cause of sterility, there is a great difference of opinion. During sexual intercourse with its attendant congestion the cervical lumen may be closed tight enough to prevent the passage of sperm, and in practically all of these cases it is possible to pass my impregnating catheter into the fundus of the uterus. Hence, before doing some of the plastics on the cervix, to cure sterility, it is wise to pass an impregnating catheter a few times and inject two or three minims of semen into the fundus; if the cause of the sterility was due to cervical stenosis, this treatment will remedy at once and save unnecessary operation. If this technic fails, we must look elsewhere than the cervix for the cause of the sterility. Unfortunately, the diagnosis of bilateral obstruction of both tubes from any ordinary examination short of laparotomy is very tedious and difficult.

To diagnose tubal obstruction or ovarian non-production it is necessary to try and obtain sperm from the fundus of the uterus. Sperms travel 3.6 mm. per minute; hence if they went right along it would take a sperm from 15 to 20 minutes to go from the cervix to the uterine end of the tube. The attempt to find sperm in the uterine fundus should be made from one hour to 24 hours after intercourse. If no sperm are found it means nothing; if numerous actively motile sperm are obtained it probably means tubal obstruction or ovarian disease.

The diagnosis of obstruction in the cervix is relatively easily made by the inability to pass an instrument, but this inability may be relative and not absolute. It is a question as yet unsolved as to the exact size of opening necessary to admit spermatozoa; hence many cervixes that take an instrument readily may not admit the passage of sperm. The next step in the diagnosis is the so-called coitus test or cervical test of Huhner. This test is carried out in the following manner: The couple are instructed to have intercourse and then the wife comes to the office as soon as possible afterward; aiming to arrive about one hour after coitus. She is placed in Sims position, the speculum introduced and the mixture of semen and vaginal secretion can be seen. Note is made as to its presence or absence on the cervix, and note is also made of the amount. This material

is taken on a wire and examined microscopically under suitable conditions to determine the effect of the vaginal secretion. Usually at the end of an hour the motility of the spermatozoa in the vagina is markedly diminished, or may be entirely absent. Next the cervix is pulled down, a platinum wire introduced into the cervical canal and this material examined for sperm and for the motility of the sperm. Sperm should be present and actively motile.

If sperms obtained from the cervix are not motile it means that the cervical secretions in this particular woman are destructive to the life of the spermatozoa. The normal cervical secretions are alkaline and the reaction of the secretion should now be taken. If they are acid we know we have located the trouble. When we have eliminated the cervix as a cause for sterility we should obtain sperm from the fundus of the uterus. If this sperm is alive and active, we can feel certain that the cause of the trouble is not in the fundus of the uterus itself, but somewhere above the fundus of the uterus, namely, in the tubes or ovary. To determine the condition of the tubes and the ovaries, a laparotomy with the catheterization of the tube is necessary.

In the differential diagnosis of azoospermia as between a fault of transportation (namely obstruction) and a fault of manufacture, the following points are valuable.

FAULTS OF PRODUCTION.

Size (testicle), small.
Consistency (testicle), hard.
Epididymus, normal or atrophied.
History:

- a. Always small.
- b. Mumps.
- c. Exposure to X-ray or ultra violet light.
- d. Trauma (severe).

FAULTS OF TRANSPORTATION.

Normal size.
Normal.
Normal or enlarged.

- a. Epididymitis.
- b. Trauma (slight).
- c. Mumps.
- d. Operation on perineum.
- e. Operation on cord.

Final diagnosis must be made by opening the scrotum and direct examination of the vas, epididymus and testicle.

To diagnose absence of ovulation or defects in the ova, as is possible with the spermatozoa, is impossible. I believe that an ovary can functionate as regards its internal and not its external secretion, the same as the testicle does, but to diagnose this condition during life is impossible at the present time except by inference.

The interaction of the spermatozoa from the husband and the genital secretions from the wife should be determined when we have worked the case up to the point of elimination of defects in

the sperms and the absence of obstructions in the cervix. This is carried out on a slide by mixing cervical and fundal secretions with the spermatozoa and also by mixing blood sera of the wife with the spermatozoa on the slide. Normally with good conditions and a good sperm the sperms should continue movement for several hours.

THE SCHICK REACTION, ITS PRACTICAL VALUE.*

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PEORIA, ILL.

Following the introduction of this test by Schick of Vienna in 1913 much skepticism prevailed as to its practical value. Since that time, however, a number of investigators have published detailed reports relative to the Schick reaction and in the main these reports have demonstrated its practicability.

Schick described a clinical reaction for the susceptibility or insusceptibility of the human organism to diphtheria toxin. The test consists of the intradermic injection of minute amounts of diphtheria toxin. After twenty-four to forty-eight hours if antitoxin is absent, or present in very small quantities, i. e., amounts less than 1/30 unit of antitoxin per c. c. of blood (Schick), or 1/100 unit (v. Behring), a positive reaction will appear. This reaction is characterized by a circumscribed area of redness about 2 to 3 cm. in diameter together with a varying amount of infiltration and some tenderness to pressure, but without constitutional symptoms. After about six days the inflammatory process fades with superficial scaling leaving a brownish pigmentation.

Basing his studies on the experiments of v. Behring, Schick standardized the toxin used for this test. He determined the amount of toxin necessary to kill a 250 gm. guinea pig, this amount representing the Minimum Lethal Dose. Schick in his work used 1/50 of this M. L. D. or 0.1 c. c. Other writers have used varying amounts of toxin, but the majority are using 0.2 c. c. diluted in physiologic salt solution.

In those cases not susceptible to diphtheria toxin either by active or passive immunity, i. e., whose sera contained more than 1/30 unit antitoxin per c. c. of blood, no reaction took place

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showing that the toxin injected was neutralized by the antitoxin normally present.

The Schick test is essentially a test for a condition of immunity to diphtheria and it was this fact that led us to make use of it in our work at the Guardian Angel Orphanage near this city. The institution is located about one mile outside the city and is ideally situated from a sanitary standpoint. The children are a healthy, vigorous lot and aside from the ordinary run of work, disease is a rarity. Until this winter the institution had never known of an infectious disease.

In November, 1915, two cases of diphtheria appeared. Antitoxin was given at once, a rigid quarantine was established and no new cases developed. In January of this year, one of the nurses at the Orphanage developed a clinical diphtheria, and in spite of every precaution new cases developed with alarming regularity. About Feb. 20 new cases were appearing at the rate of one and two a day, even though a rigid quarantine was maintained. The outlook was very serious, owing to the fact that there were approximately 125 children in the institution.

Two courses were open to us:

(a) Immunization of those children not affected.

(b) Application of the Schick test with immunization of those children showing a positive reaction.

We decided to follow the latter course and the Illinois State Board of Health supplied us with enough of the toxin to make the tests. The amount injected as furnished by the Illinois Board of Health is 0.2 c. c. diluted with physiologic salt solution. The site of the injection is the outer side of the arm. The surface is prepared in the usual manner, and then with a fine needle the injection is made intradermically. When this is properly done, a white blister like elevation appears, the depressions corresponding to the hair follicles.

On Feb. 24 and 25, we applied the test to 116 children, ranging in age from 3 months to 14 years. The reactions were examined in 12-14-36-48 and 72 hours. The table shows there were 40 positive reactions or about 34 per cent. There were 72 negative reactions or about 63 per cent. and 2 pseudo reactions or about 1 per cent. Our readings were made at the end of 48 hours to

eliminate the possibility of error, owing to the presence of traumatic and false reactions.

Age of cases tested in years:	1	2	4	5	7	8	9	10	11	12	13
No. of reactions.....	2	2	1	5	6	5	5	6	4	1	3

It is interesting to note that 3 days after one of our cases was injected and showed a positive reaction she developed a tonsillar membrane. A culture was taken, but without awaiting the laboratory report we administered antitoxin. The following day we received a report of a pure culture of Klebs, but our patient was well on the way to recovery.

From our findings we cannot agree with earlier reports that immunity is a family characteristic as in 5 instances members of the same family reacted in an opposite manner. Many writers seem agreed that immunity is a family trait; in fact, we have yet to read an article to the contrary, but our results are not in accord with these reports.

Several of our cases who had diphtheria two months previously, gave a negative reaction, while one case in particular, who had diphtheria three weeks before and received antitoxin, gave a positive reaction, showing that passive immunity is of short duration in some individuals.

In this series we had 2 pseudo reactions which appeared within twelve hours, were of smaller area, not circumscribed and disappeared within 2 to 4 days without desquamation. We administered antitoxin to our false reactions and would advise that this be done by all who are inexpert in the interpretation of the reaction. A pseudo reaction bears no relation to the amount of antitoxin present in the organism as it is merely an expression of the tissues to the protein in the bouillon.

A traumatic reaction was occasionally seen at the site of the injection at the end of twelve hours; a slightly reddened area measuring from 2 to 3 mm. in diameter which disappeared within 24 hours without desquamation or discoloration.

We immunized the cases giving a positive reaction by administering 1,000 units of antitoxin. Since that time we have had no new cases of diphtheria.

The importance of making use of this test cannot be too strongly emphasized. As can be seen from the above table, we made but 42 injections of antitoxin in a series of 116 cases—a distinct saving in serum and in inconvenience to the children had we not used the test.

It is a well known fact that the giving of antitoxin indiscriminately involves a risk. Occasionally we get a reaction to the serum in which alarming symptoms develop. Urticaria with severe itching of the skin, tachycardia with shortness of breath, general depression and anaphylactic shock are some of the symptoms usually seen. Frequently a control test is used in the other arm in which we inject a small amount of antitoxin. In this way we can detect a case which is unduly sensitive to horse serum as these cases give a marked reaction to antitoxin as evinced by redness, swelling and pain at the site of injection.

One of our cases developed a tonsillar membrane, but the Schick test was negative. Culture from the throat showed the presence of the diphtheria bacillus. This case proved to be a diphtheria carrier, hence the negative Schick test. The giving of antitoxin was useless as the patient had enough antitoxin normally to neutralize the diphtheria toxin.

One of the most interesting features of our work is that of the 63 per cent. giving a negative reaction not one developed diphtheria. It is true four negative cases complained of sore throat and exhibited a temperature, but an examination showed the offending organism to be of the streptococcus group.

About two months have elapsed since the antitoxin was administered; no new cases have appeared, the active diphtheria patients after a thorough examination of the throat have been released from quarantine and what was apparently a serious menace to the institution was completely checked, owing to the efficiency of the Schick test and antitoxin.

CONCLUSIONS:

(a) The Schick test is of positive value in determining the susceptibility of a patient to diphtheria.

(b) It is of value in differentiating doubtful membranes of the throat.

(c) It shows that passive immunity in some cases is of short duration.

(d) Our observations do not agree with others that immunity is a family characteristic.

(e) The Schick test insures a greater saving in antitoxin as it has demonstrated that less than 50 per cent. of children are susceptible to diphtheria.

(f) Diphtheria carriers give a negative Schick reaction. The laboratory report and the test conflict, but we know that most diphtheria carriers have enough antitoxin to neutralize the toxin present.

(g) The use of the Schick test together with a control serum injection is of value in detecting a case hypersensitive to horse serum.

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 623 Jefferson Building.

623 Jefferson Building

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE THIRD CERVICAL VERTEBRA.

COMMENTS ON SOME OF THE ANSWERS TO QUESTION No. 19 IN THE RECENT COOK COUNTY HOSPITAL EXAMINATION.

JOHN RIDLON, M. D.
CHICAGO.

At the recent examination for appointment as internes in Cook County Hospital one hundred and fifty took the examination. There were twenty questions; two of them, nineteen and twenty, were on orthopedic subjects.

The answers to "Question 19" were read by Dr. Philip Lewin, Dr. T. P. Lynam and myself.

One does not expect a medical student even after a four-years' course to have a very full knowledge of orthopedic subjects. It is rather hopeful when a young doctor does not know many things, particularly if he knows that he does not know such things; but when he is crammed full of misinformation his condition is pathetic, and he becomes a menace to the community.

As we all know the men seeking for appointments at the Cook County Hospital are as a rule the choice men from their classes. Read then the following comments and imagine if you can what the condition may be of those other men who did not come up for this examination.

The points upon which the examination papers universally agreed were:

The patients are practically always the children of tuberculous parents; are as a class evidently unhealthy; practically all have been subjected to injury of the neck; practically all have abscesses; all the abscesses should be opened; and every case must sooner or later be subjected to an Albee's or a Hibbs' operation.

Now, as a matter of fact, patients with tuberculous caries of the spine are rarely of tuberculous parentage. I do not know the percentages of children having tuberculous bone disease as compared with healthy children among the children of tuberculous parents, but I am strongly of the opinion that not more than one case in ten having tuberculosis of the third cervical vertebra have tuberculous parents.

These children, as a class, do not show any more evidences of privation and general ill health at the onset of the disease than the average.

INJURY AS A CAUSATIVE FACTOR IS RARELY FOUND.

Abscesses are not found in all cases by any means; probably not oftener than once in ten cases, and when they are found they rarely should be opened. I have never seen one case that required opening. About the worst thing a doctor can do to a patient having a tuberculous abscess is to open it.

Albee's or Hibbs' operation for tuberculosis of the third cervical ought not to be a routine treatment in every case. These operations for caries in some part of the spine have been made use of for four years or more. The men who do them usually prefer patients having disease in the dorsal region, and neither operation has been done for cervical caries half a dozen times. For practically all the graduates of the Chicago medical colleges for this year to go out with the conviction that it is the thing for *them* to do in every case is—War!

What are the things necessary to do to make a diagnosis of tuberculosis of the 3d cervical vertebra?

1. To inspect the patient.
2. To note the range of voluntary movement.
3. To feel gently along the tips of the spinous processes for kyphosis.
4. To test the range of passive motion, *very* gently.

Here are some of the things these young doctors are going to do:

1. Make a Calmette, a von Pirquet and a subcutaneous tuberculin test.
2. Test for local tenderness by percussion on the spine and a blow on the top of the head.
3. Make a lumbar puncture.
4. Make an exploratory operation and "make a microscopic section of the excised piece."

Only two or three of the one hundred and fifty candidates knew that the Calmette and von Pirquet tests could not be depended upon for the diagnosis of tuberculosis of the third cervical vertebra, and that the subcutaneous tuberculin test was dangerous. Practically all of these candidates had implicit faith in these tests. Personally I have never used any of them and never shall. They are useless. A doctor who can not make the diagnosis without these tests can not make it with them.

To elicit tenderness at the seat of disease by percussion on the spine or on the top of the head is unnecessary and is harmful. It is the doctor that needs the punch in the neck and the blow on the head—not the child.

To make a lumbar puncture to enable one to make the diagnosis is bad enough, *but* to make an exploratory operation into a tuberculous bone focus in the front part of the body of the third cervical vertebra for the purpose of making a microscopic section is absolutely the limit!

Here are some of the things these candidates expect to find on examination:

1. A spinal deformity, "either kyphosis or lordosis."
2. Compensatory lordosis.
3. Scoliosis.
4. Wasting of the muscles.
5. "Marked wasting."
6. Redness and swelling over the vertebrae.
7. That the patient bends from the hips and holds the lumbar and dorsal spine rigid.
8. An afternoon temperature of 101 or a little less.
9. Local tenderness.
10. Lung involvement.
11. Lumbago.
12. Spondylothesis.
13. "Anesthesia and paresthesia."
14. Abscess in the pharynx, which may rupture into the larynx, or descend into mediastinum, or

anywhere else, and that these abscesses frequently open at the back of the neck.

15. "Psoas abscesses" in the neck.

16. "A yellow mass" on x-ray examination.

The spinal deformity to be seen on examination is really that the neck is bent in some direction and held so; and the distance from the head to the shoulders is lessened. A small kyphosis may possibly be seen, and can often be felt. But there can be no lordosis. And tuberculosis of the third cervical has nothing more to do with scoliosis than it has with bow-legs.

There may be wasting of the muscles; but how can one tell this? What have we as a basis of comparison?

There is never "redness or swelling over the vertebrae."

When the patient bends forwards the movements in the lumbar and dorsal spine, where there is no disease, are free.

There is an elevation of the afternoon temperature in only about half of the patients.

There is never any local tenderness. How could there be when the disease is in the front of the vertebral body, an inch and a half or two inches distant on the other side of the column.

Lung involvement is probably no more frequent in people having disease of the third cervical than in those who have no vertebral disease.

Lumbago has no more to do with the subject than corns. And spondylolisthesis is a slipping forward of the fifth lumbar vertebra on the sacrum—an affair at the other end of the column.

There is no "anesthesia and paresthesia."

It is said in the books that abscesses from diseased cervical vertebrae do protrude into the pharynx, but throughout an active orthopedic practice during thirty-eight years I have never seen one; nor a cervical abscess at the back of the neck, nor descending into the mediastinum or elsewhere than to break in the usual place at the side of the neck. The young doctor who feared one of these abscesses would break into the larynx and drown the patient by filling his lungs need lose no sleep over it.

A "psoas abscess" is called psoas because of its relation to the psoas muscle, which did not use to be in the neck.

Quite a number of these candidates thought the diagnosis of tuberculosis of the third cervical easy; but if I were to do all the things they

have mentioned, with examination of the blood and urine, and also the really necessary things, I would call one case a day a full day's work.

Among the many conditions from which these candidates thought tuberculosis of the third cervical vertebra should be differentiated was rickets; and "lordosis due to congenital disease of the hip."

The treatment recommended was also very curious. One recommended "counter irritants"—a relic of the eighteenth century. Others thought that "casts give only partial immobility and are unsatisfactory." Many advised the use of the "jury-mast," which orthopedic surgeons abandoned more than a quarter of a century ago. A few had heard of the Taylor brace, which is by far the apparatus of choice for walking patients, but none seemed to have a clear idea of just what it is. Many mentioned the "Thomas collar," but thought it a device made of stiff leather. Of course a properly constructed stiff leather collar is just as efficient as a Thomas collar; but a properly made leather collar is a very costly device, while a Thomas collar made of sheet iron, felt and sheepskin costs only a couple of dollars. All of them advised the Albee (or Alby) or Hibbs' operation, in all cases, but few had any clear idea of how these operations differ. One would take his bone-graft from the slender fibula, instead of the tibia as is the custom. One knew that a piece of a rib could be used, and one knew of Halsted's operation. Many would remove the diseased bone—they evidently did not really know where the disease was located. One would put a steel plate on the bones and fasten it with screws.

"Buck's extension"—a device for traction on the leg by adhesive plaster for fracture of the femur and hip disease—was advised for tuberculosis of the third cervical vertebra. Another advised a plaster cast by Abbott's method (which is a treatment for scoliosis). Laminectomy was another method of treatment—I wonder why? The use of Beck's paste as a "span" for new bone was a novel suggestion. Almost every one advised "tuberculin treatment," which is useless and harmful.

When a cure resulted in deformity it was advised to use force and tenotomy, (of what?) and follow this with gymnastics; thus doing what little they could to cause a return of the disease. Some of them were of the opinion that para-

plegia could not exist; and others that death came "by paralysis."

Considering all this misinformation, I felt that there was some excuse for what Frank Lydston said to me some twenty years ago: "A medical student ought to be taught only enough to know to whom he should send his patients."

THE MODERN TREATMENT OF OBESITY.

EUGENIA A. MILLER, M. D.
CHICAGO, ILLINOIS.

The importance of electro-therapy is very evident when we find that inventions and discoveries of great value are being made almost daily in this particular branch of therapeutics. It must be remembered, too, that these inventions and discoveries are by no means children of accident, but their creation is due to persistent systematic study, investigation and experimentation by those interested in this special department of the broad field of physical science, and if we would align ourselves with them in their efforts, it becomes our duty to follow with interest and zeal every possibility which they utter and to assist in its elaboration and development.

It is this very reason that impels me to elaborate and develop, in so far as a publication of this sort can, the results of my observations and experimentations with electricity in the treatment of obesity.

In looking over the increasing literature of electro-therapeutics of the last twenty years we are at once met with the fact that since the introduction of the static current and the interrupted current, repeated attempts have been made to apply electricity in the treatment of obesity. The galvanic current has been used because of its ability to change metabolism and for this reason it has been held by some with favor.

Be that as it may, I feel impelled from my own conclusions to give preference to the interrupted current; that current which produces intermittent muscular contractions, for reasons which I shall try to elucidate.

Originally, the static current and the interrupted current were used chiefly for diagnostic purposes, but it wasn't very long when their value in the treatment of muscular weakness and muscle atrophy of trophic origin was recognized.

As early as 1897 Dr. E. C. Schnee of Frankfurt recommended the faradic current for the absorption of fat with a four cell bath. But later on Prof. Bergonie of Paris realized that the use of the ordinary faradic current brought equally as good results as the four cell bath; and with less inconvenience. Prof. Weir Mitchell also recognized this fact and endorsed Prof. Bergonie's conclusions.

This current was not looked upon with favor by most scientists of that time, believing that it possessed only a limited amount of energy and along with the inconveniences to operator and painfulness to patient the results obtained were very small and faradism for the treatment of obesity met with defeat.

Prof. Nagelschmidt of Berlin saw the importance of Prof. Bergonie's principle and made endeavors to improve it. As a result his method consisted in the application of the Leduce current, which has the advantage of being less painful because of its anesthetic properties. But it possesses the disadvantage of producing only a limited muscular contraction, and for this reason appears to be inadequate for our purpose.

With the experience of the foregoing men to draw from, together with my own experience, I have come to the conclusion that the condensor current of Prof. Zanietowsky of Krakau, which is recommended by Professors Cluzet, Herman, Dubois, Mann, Kramer, Wertheimer, Solomon and Harvey for diagnostic and therapeutic purposes, is the current most suited for treating obesity.

This current possesses the advantage of producing an intense muscular contraction with the smallest amount of electrical energy; thus producing anesthetic effects. In brief, it overcomes the insufficient stimulus and the painful contractions of the ordinary faradic current.

Several years ago Dr. E. C. Schnee of Frankfurt succeeded in perfecting an apparatus with the automatic condensor current known as the Degrassator, which he has so thoroughly outlined in the *Münchener Medizinische Wochenschrift*. This Degrassator possesses the same anesthetic properties as Prof. Nagelschmidt's Leduce current, above referred to, and in addition possesses the very great advantage of causing a far more energetic contraction of the muscles with a minimum output of electrical energy.

It has been said by some authorities that these

condensor discharges of Schnee, because of their suddenness and abruptness, produce a disagreeable sensation in the contracting muscles. This, however, holds good only in single discharges of small capacity. Discharges of greater strength when they follow each other in rhythmical intervals, say, the frequency of the average pulse beat, produce a slight and rather agreeable sensation in the contracting muscles and when continued, produce a calming and sedative effect.

The Degressator obesity apparatus, according to the principle of Schnee, consists of a switch-table and a couch. The switch-table contains a voltmeter and a milliammeter, gauged from five milliamperes (with shunt up) to fifty milliamperes. It is also equipped with two rheostats for regulating the voltage and for controlling three capacities of five, ten and twenty microfarads. By the combined use of these three capacities, 5, 10, 15, 20, 25, 30 and 35 microfarads can be applied.

In addition to these necessary conveniences, the switch-table is supplied with extra switches for single and automatic rhythmical discharges, the number of the latter being regulated by a metronome, supplied for that purpose, which has a range of from forty to two hundred and thirty impulses per minute. It also has a main switch, a current reverser and an incandescent lamp (connected in series with the terminals).

In the couch are four large metal electrodes; two for the back and two for the seat and are made and arranged so that they may be easily detached and sterilized. On the side of the couch are plugs used for the attachment of cables with flexible electrodes. At its head are fifteen small switches where the electrodes are applied to either the positive or negative poles. The electrodes (fifteen in number, including the indifferent electrode), made of Brittany metal, are soft and pliable and can be heated and sterilized.

The patient is placed on the couch and the electrodes above referred to are applied, as the case demands, to the arms, forearms, thighs, legs, breasts and abdomen. Sandbags weighing from ten to twenty kilos are placed on the arms, legs and abdomen in contact with the electrodes for these parts. These bags act as a resistance for the contracting muscles while under stimulation and the weight is increased from time to time in the course of treatment until it has reached about one hundred kilos.

The duration of each treatment varies from ten minutes to sixty minutes. It is advisable, however, to start with only a ten-minute treatment and increase gradually until the sixty-minute limit is reached; all things being favorable for such a prolonged treatment. The number of treatments per week depends upon the condition and inclination of the patient. But as many as two treatments per day can be given without injurious effects. To obtain the best results in this condition under discussion enough treatments should be given to cover a period of from three to eight weeks, and then, if necessary after a period of rest of from two to three months, another course of treatment can be given. The grouping and arranging of treatments in this manner seems to me to be the best mode of procedure.

The effects upon the patient both temporarily and permanently should be the best reason for the existence of this article and I shall endeavor, as well as I can, to point out some of the most important ones.

The anesthetic effect of the condensor discharges permits of the most intense contractions of all of the muscles of the body. These contractions are produced without the power of the will of the patient and consequently no vital energy is wasted. And notwithstanding the fact that the aggregate weight of the sand bags used is from one-hundred to two-hundred pounds, no fatigue is experienced after the treatment.

The stimulation of the vaso-dilators by the electrical current produces, as we know, a dilatation of the peripheral blood vessels, hyperemia of the skin, perspiration and an increase of temperature.

Respiration is stimulated both in frequency and capacity, thus favoring the intake of oxygen and the output of carbon dioxide.

A slightly quickened pulse with a greater amplitude and a sharper diastole is without a doubt sufficient proof that the resistance in the vascular system is reduced and a stronger systole and diastole obtains. In many cases a marked increase of the systolic and diastolic blood pressure will be noticed to take place slowly.

All these phenomena disappear very quickly after the application. The stimulation of active physical exercise in any form presents such a symptom complex as we have just enumerated and after the body has become accustomed to the

exertion the prominence of these symptoms is lessened.

And so it is with our patient who is being subjected to the Degressator discharges. For this is truly as active exercise as any other, but with the advantage of conserving the vital energy. His heart, instead of becoming weakened, as is the case with other methods of treatment, becomes stronger. And after the treatment his muscles respond to the power of the will with such ease and agility that refreshment and comfort as if by magic seem to take the place of fatigue.

This, then, is the temporary effect upon our patient. But what about the permanent effect? I can truly say that it is entirely satisfactory to both physician and patient. To the physician it is a great deal of comfort to be able to be of real service to such patients who suffer from this most distressing malady. And to the patient it should bring extreme joy to be able to have his adiposity converted into real live agile muscle tissue with an active brain, able to do and live in a way that is becoming to a healthful person.

I do not exaggerate when I say that as much as a pound a day can be taken off and even more than two pounds if, in addition to the above treatment, a dietetic regime is adhered to.

After the presentation of the above facts, it would seem but natural and logical for all thinking readers of this article to ask the following question: If electrical treatment accomplishes the same results as active exercise, then why not direct the patient to follow simple rules in calisthenics and dietetics? Let me say in answer to this question that a personal investigation of the kind of treatment referred to will lead to the conclusion that up to the present time it has proved impractical in the majority of cases. And there are reasons for this. 1. The condition of the heart in the majority of these cases would not permit the required amount of exercise for the desired results. 2. If such exercises were possible, most patients after the effort would be inclined to and do partake of food and drink, thus defeating our purpose. 3. And most important of all is the lack of necessary courage and perseverance for such a task. Thus we are compelled by way of necessity to search for something which will overcome these difficulties and to render satisfactory results in the least possible

time in the best possible way; for this is one of the reasons why I have presented the above method.

No doubt exists in my mind that if the patient can be subjected to this form of involuntary muscular work, thoroughly and carefully, the fat which is stored up in the tissue as a reserve must necessarily become absorbed and eliminated. This work, together with a diet poor in carbohydrates (which does not necessarily mean the reduction of the quantity of food taken) should lead to no other but desirable results.

But it should be carefully borne in mind that the loss of weight at the end of a given number of treatments is not in proportion to the amount of fat removed. That is, the number of pounds of fat eliminated is greater than the number of pounds of total weight lost; since there is an increase in the amount of muscle tissue. And as further proof of the transformation of a patient's signs of flabbiness to athletic sinuosity, the loss in girth measurement is far greater than the proportionate loss of weight.

The patient is actually transformed from a dull, flabby and listless individual to a robust, athletic and active personality. His expression, instead of being lethargic, becomes bright and his eyes have a twinkle of wakefulness.

This, then, is but one condition wherein we have found the successful application of electricity. But what about its application in other conditions? Its use in muscular weakness and atrophies, weakness of the heart muscle, chronic constipation, diabetes mellitus, etc., has met with as great success as in obesity. At some future time I hope I may have the opportunity to present my experiences with the Degressator discharges in the various conditions just enumerated.

In conclusion, I wish to say that the subject thus presented should at least impel you to an honest investigation. For I feel that this subject possesses unlimited possibilities both as to its present application and to its future evolution. And if I have done nothing more by presenting my experience in this line than to arouse those interested in this branch of science to at least an unbiased attention sufficient to discover the merits of this treatment, I shall feel that my efforts have not been in vain.

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JUNE, 1916

Editorials

ANNUAL MEETING.

Another mile post in the history of the Illinois State Medical Society has slipped by, and the Annual Meeting at Champaign is added to the list of memories.

The attendance was not as large as it should have been, but compared favorably with that of other years. It should have been the largest in the history of the Society. The program was exceptionally good, and proved unusually interesting, as demonstrated by the full attendance in the various sections. The halls of the Masonic Temple of Champaign were ideal for assembly rooms. It will be a long time before the Society will have a better convention hall in which to hold its annual meeting.

The Society is to be congratulated upon choos-

ing Dr. E. B. Cooley of Danville as president-elect. We think no better choice could have been made. With Dr. W. L. Noble as president this year and Dr. Cooley following as president the next year, the Society is assured of excellent leadership for the two years, and cannot help but progress. We predict that the Illinois State Medical Society will give an account of itself during these administrations.

The fraternity of Champaign did all that was possible to entertain the Society, and if one judges from expressions overheard, it was highly successful in its effort.

Bloomington again extended an invitation for the Society to meet in that city next year and the invitation was accepted.

THE ALIENISTS AND NEUROLOGISTS.

The fifth annual meeting of Alienists and Neurologists of the United States, under the auspices of the Chicago Medical Society, for the discussion of Mental Diseases in their various phases, will be held June 19 to 23, 1916, at Hotel La Salle.

The program covers over eighty contributions or papers, is scientific and educational to the general practitioner as well as to the specialist engaged in this particular line of work. The subject of lues alone is to be discussed in such up-to-date manner, especially as to diagnosis and treatment, that it will repay any one in general practice to avail himself of the opportunity to hear the papers and discussions on this subject.

The symposium on what constitutes a modern hospital for the insane, is a subject that should interest all, both from an economic and humanitarian standpoint. There are thirty or more individuals to speak of the various subjects from different standpoints, concerning a modern hospital.

It is to be hoped that the physicians throughout the state will avail themselves of this opportunity to get better acquainted with mental diseases, the diagnosis, care and treatment of this class of patients.

The program appears in Society Proceedings.

DOCTOR RIDLON'S ARTICLE.

On another page Dr. Ridlon has expressed a "righteous indignation" because of poor examination papers handed in by one hundred and fifty

applicants for internship in Cook County Hospital.

We do not for a moment question the doctor's statements as to the replies given to the stated question, but we do not believe his criticisms are aimed in just the right direction. The last statement of his paper, which he credits to another member of our Society, indicates the inability of the student. If one student had shown such a woeful lack of knowledge, we would think the student had not applied himself during his college course, or was not capable. If ten or any other number of students coming from one school showed a marked lack of knowledge, we would naturally question the standing of that particular school. But these are "the choice men of their classes" and come from many medical colleges. They are answering these questions as they have been taught, or (and here is where the trouble lies), they have not been taught efficiently, and are merely guessing. If they do not know, why shouldn't they guess? They may hit the mark, or come close, while if they do not reply at all a zero mark is drawn.

It would be interesting to ask one hundred and fifty practicing physicians how many cases of tuberculosis of the third cervical vertebra they saw in the clinics while they were students. Ask these same one hundred and fifty physicians how many operations for cancer of the stomach or bowel, or any other major operation they had witnessed during the same college course.

As long as the majority of the teachers in medical colleges are practicing physicians and surgeons, and they are teaching largely as a means of becoming well and favorably known through their clinics, and thus enlarging their practice, better results in teaching may not be looked for.

Orthopedic surgery is not the only neglected subject in the curricula of all the medical colleges. What of materia medica, of therapeutics, of physiology? How many students on graduation know how to properly examine a patient? What of physical diagnosis, and so on? Would it not be well to insist on all medical colleges giving one or two years hospital work in their courses?

These men may not know tuberculosis of the cervical spine when they begin their internships, for they have not been taught to know it nor have they seen it, but they should know it when they

conclude their hospital service. It sometimes looks to us that perhaps the medical schools are following the teaching of that last statement of Doctor Ridlon's paper, and after all we are not so inclined to berate the student.

PREVENTION OF BLINDNESS.

The most unfortunate condition which may afflict humanity is blindness. Occurring, as much of it does in childhood, it is a calamity beyond description. Terrible as is the calamity to the sightless victims, it is also unfortunate for society, for the majority of the blind become dependent upon society for their care and support. None of us ever refuses to help the blind when opportunity presents itself, but do we do as much as we could to prevent it? It is charitable to help the blind, but how much more charitable and how much more beneficial would it be to prevent it?

There is no doubt that much of the blindness, and the misery attendant thereto, could be prevented if proper means were used at the proper time. Dr. C. St. Clair Drake, secretary of the State Board of Health, has been doing excellent work along this line, and to him mostly must be given credit for the law requiring the reporting of these cases.

The American Medical Association began several years ago through a subcommittee of the council a propaganda looking toward the conservation of vision, and its work has encouraged both physicians and ophthalmological societies to work more earnestly for the prevention of blindness.

We would call the attention of our members to the new law entitled, "An Act for the Prevention of Blindness from Ophthalmia Neonatorum, etc.," in force since July 1, 1915. The mandatory portion of the law, as it relates to physicians, is as follows:

Section 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That any diseased condition of the eye, or eyes of any infant in which there is any inflammation, swelling or redness in either one or both eyes of any such infant, either apart from or together, with any unnatural discharge from the eye, or eyes of such infant, at any time within two weeks after the birth of such infant, shall, independent of the nature of the infection, be known as ophthalmia neonatorum.

Sec. 2. It shall be the duty of any physician, surgeon, obstetrician, midwife, nurse, maternity home

or hospital of any nature, or parent, assisting in any way whatsoever, any woman at childbirth, or assisting in any way whatsoever, any infant, or the mother of any infant, at any time within two weeks after childbirth, observing or having a reasonable opportunity to observe the condition herein defined, and within six hours thereafter, to report in writing or by telephone, followed by a written report, such fact to the local health authorities of the city, town, village or other political division, as the case may be, in which the mother of any such infant may reside: *Provided*, that such reports and the records thereof shall be deemed privileged information and shall not be open to the public.

Sec. 3. It shall be the duty of all maternity homes and any and all hospitals or places where women resort for purposes of childbirth, to post and keep posted in conspicuous places in their institutions, copies of this Act, and to instruct persons professionally employed in such homes, hospitals and places regarding their duties under this Act, and to maintain such records of cases of ophthalmia neonatorum in the manner and form prescribed by the State Board of Health.

It shall be the duty of any and all physicians, and midwives to advise, for the prevention of ophthalmia neonatorum, such prophylactic as shall be prescribed by the State Board of Health, and to inform the parents or guardians of a child as to the dangers and dire consequences of this disease. For the purpose of preventing the development of ophthalmia neonatorum in cases of childbirth attended by midwives, midwives may employ the prophylactic prescribed by the State Board of Health, provided the consent of the parent or parents or guardian shall first be obtained for the use of such preventive treatment.

We would urge all doctors to be very prompt in reporting all cases of ophthalmia neonatorum, and to do all in their power, regardless of other circumstances, to prevent the blindness which may follow this condition.

THE A. M. A. MEETING.

The sixty-seventh annual session of the American Medical Association at Detroit, June 12-16, should attract an unusually large attendance. While not in the same class with Chicago as a convention city, Detroit's central location and many attractions will appeal to the profession of all the central states. The opportunity to combine a delightful lake trip from Chicago on the *South American* will be a novelty pleasing in itself and it will also relieve the hotel congestion unavoidable on such occasions, as it is proposed to give guests the use of the staterooms and serve breakfasts on the boat during the meeting. The fare for the trip one way is \$30.

The scientific programs of the sections are fully up to the high standard of former meetings. The Illinois State Medical Society will be represented in the House of Delegates by Drs. Charles J. Whalen, Charles E. Humiston, H. N. McKeehn, A. M. Harvey and J. C. Krafft of Chicago, Chas. W. Lillie of E. St. Louis, J. M. Pfeifferberger of Alton, R. S. Denney of Aurora and Thos. O. Freeman of Mattoon.

NOTICE—RUSH ALUMNI REUNION.

There will be a grand reunion of the members of the Rush Medical College Alumni Association during the coming meeting of the American Medical Association at Detroit, Michigan on June 13, 1916, at the Hotel Tuller, roof garden, 8:00 p. m. A smoker, buffet luncheon and songs, merriment, class reunions will be the main features.

When you register your attendance at the American Medical Association meeting do not overlook that notice calling your attention to the Rush Alumni reunion. Make an earnest effort to be there and meet the members of your class. They are all anxious to see you and we all want to meet you there. Help us to make this the annual meeting of our Association jointly with meeting of the American Medical Association a rousing success.

HOTEL ACCOMMODATIONS AT DETROIT.

We are reliably informed that at this date it is impossible and has been for two weeks, to secure hotel accommodations at Detroit during the week of the meeting of the A. M. A. We make this announcement merely to warn our members of the hotel situation there, so they may be prepared.

We would advise all our members who contemplate going to write Mr. Paul Tice, 33 East High street, Detroit, to arrange some place for sleeping quarters, and especially to do this if they intend taking their families. This situation is unfortunate, but the Society is so large, and the attendance so great, that it becomes an impossibility for any except the largest cities to furnish adequate hotel accommodations for this association.

OUTING AT STARVED ROCK.

The physicians of the northern part of the state have been making an effort to have a Physicians' day (social get-together meeting) at Starved

Rock some time this summer. At the Champaign meeting Dr. E. J. Sloan of Bloomington, E. W. Weis of Ottawa, and E. E. Perisho of Streator, were appointed as a committee to make necessary arrangements. July 12th has been chosen as the day for this gathering, and the committee has made arrangements with the Starved Rock hotel to care for the doctors at that time.

This trip will afford an excellent opportunity for the doctors with their families to have a two or three days' outing, to meet their medical associates, and at the same time see one of the beauty spots of Illinois.

The committee will arrange a social program for the day, and it is hoped that a large number of doctors will attend. Every doctor in Illinois with his family is invited.

SENATE'S ACT IS MENACE TO CITY'S HEALTH.

VOTES TO CUT FLOW OF THE DRAINAGE CANAL TO 250,000 CUBIC FEET.

Washington, D. C., May 29.—(Special.)—While both Illinois senators were away from Washington today Senator La Follette of Wisconsin worked an amendment into the river and harbor bill which, if enacted into law, not only may kill the Dunne waterway plan altogether, but also restrict the right of the Chicago drainage trustees to take more than 250,000 cubic feet of water a minute from Lake Michigan.

The sanitary canal now uses approximately twice that amount of water to carry the sewage of the city down the river and away from the lake water, which is thus maintained in purity for the use of the people.

To cut the flow to 250,000 cubic feet a minute would be a vital menace to health in Chicago and its suburbs. —*The Chicago Tribune.*

It would seem that the Senators from Illinois have "had something put over them." We scarcely believe there will be federal laws passed which will jeopardize the health of Chicago and vicinity. It would reflect upon the body that passed such laws. Nevertheless the medical fraternity should be on guard and ready to enter protest against any measure which may deleteriously affect the health of the commonwealth.

We believe the time has come when the health authorities should do more to prevent contamination of all lakes and rivers. It is imperative that the water in all lakes be kept free from contamination. In Illinois practically all of the lakes are used as pleasure resorts. They are the playground of the people, and it is unfortunate indeed

that those using the lakes must be endangered by the pollution of sewage from nearby towns. The lakes of Illinois, Wisconsin and Michigan have played an important part in the health of these commonwealths, and regardless of all other consideration, must be kept free from lurking danger from sewers and other drainage.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon General of the Army announces that preliminary examinations for the appointment of First Lieutenants in the Army Medical Corps will be held on July 17, 1916, and August 14, 1916, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received in order to lessen the traveling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination. There will be more than one hundred vacancies to be filled after July 1st, when the bill for the reorganization of the army becomes a law.

TUBERCULOSIS NOTES.

The Tb. Problem.—The fact that the anti-Tb. campaign has not brought results as favorable as might have been expected is due to the slogan "Tb. is an infectious disease," which overlooks the fact that the disease is acquired in childhood and its manifestation in the adult is only a light-up process. Isolation of all persons with tubercle bacilli in the sputum would be effective prevention, but this cannot be attained. Hence, the only hope lies in childhood prophylaxis. Since the infection occurs in early childhood, and perhaps in utero, all attempts at prophylaxis are in reality therapeutic. Dr. Karl von Ruck has prepared a vaccine consisting of the watery extracts of the tubercle bacillus which has been given by repeated injection to young children, until their serum shows bactericidal power against the bacillus. The children gain in weight and appetite and do not develop active Tb. The largest number of experiments have been carried out on animals, using some as controls. In the case of animals, some failures were observed, and these have

been explained by the existence in the animals of a pseudo-tb. which interferes with the experiment. The vaccine has also been administered to cattle with good results, and this may later solve the problem of the tb. cow.—*The Tb. Problem*, S. H. von Ruck, *Lancet-Clinic*, Sept., 1915.

The lack of increased temperature does not exclude incipient tuberculosis, although usually present.

Every endeavor should be made to prevent secondary infections, as these may make of a favorable case an unfavorable one. All foci from which such infections begin, as nose, throat or teeth, should be attended to. Visitors with acute infections should not be allowed to come in contact.

In the use of tuberculin adhere as closely as possible to one particular kind. Its action can be better judged than if several kinds are used.

Anemia furnishes a fruitful ground for the development of tuberculosis.

Tuberculin is a most valuable aid in the treatment of surgical tubercular conditions. The usual surgical and orthopedic measures, however, must not be neglected.

Hasty Diagnosis.—About 80 per cent. of cases classed as incipient in German sanatoria have been found to be not sick at all or as suffering from some other disease and fit to be sent to the front. The belief that any case of Tb. discovered early will be cured is wrong. There are cases which are malignant from the beginning, and which are not affected by any form of treatment. On the other hand, in slowly progressing, chronic cases there is no reason for hurry in the making of a diagnosis, since the patient will not be harmed much by waiting a few weeks. For dependent consumptives sanatorium accommodation is scarce; they have to wait for admission, whether the diagnosis is clear or not. By haste in diagnosis many non-tbc. cases gain admission to sanatoria, thus depriving tbc. cases of accommodation. Doubtful cases should be kept under observation for a number of weeks, while they are allowed to continue at their work. They may be told that they have no Tb., but that they are threatened with it. Phthisis consists of a number of acute or sub-acute attacks with intervening periods of quiescence. Treatment aims at rendering the periods of quiescence longer. Most cases of incipient Tb., such as gain admission to sanatoria at present, are spontaneously cured or arrested. It is the active cases which should be admitted. Sanatoria will not fulfill their purpose until this plan is adopted. A hasty diagnosis of Tb. may prove more disastrous than neglect to diagnose an active and progressive case.—*Hasty diagnosis of pulmonary Tb.*, M. Fishberg, *Med. Record*, Jan., 22, 1916.

Stain for Tubercle Bacilli.—1. Three per cent. alcoholic solution of crystal violet.

2. One per cent. aqueous solution of ammonium carbonate.

3. Ten per cent. solution of nitric acid (C. P.).

4. Ninety-five per cent. alcohol.

5. Saturated alcoholic solution of Bismarck brown, of which enough is added to water to make a tincture of iodine color.

Technic.—Make smear or prepare urinary sediment as usual. Mix one part of 1 with three parts of 2. Add this solution to smear, bring to steaming-point, and cool three successive times. Pour off excess of stain and wash in tap water. Rinse with 3 and 4 alternately until the specimen is colorless. It is not necessary to wash. Add solution 5 to three minutes. Dry, add cedar-oil, and examine with immersion lens.

The tubercle bacilli stain a pretty violet with a light brown, almost yellow background, and are much more easily found when using this stain than with any other. It can be used for urinary sediment as well as for sputum and for tissues.—*A stain for tubercle bacilli*, E. Klein, *N. Y. Med Jour.*, Jan. 29, 1916.

Public Health

CAN WOMEN VOTE ON THE COUNTY TUBERCULOSIS SANITARIUM PROPOSITION?

In a number of Illinois counties, at the fall election of this year, the voters will be called upon to determine whether or not tuberculosis sanatoria shall be established. Incidentally, under the law, these county institutions, if established, will be known as "sanitaria."

The Glackin law, passed by the forty-ninth general assembly, is very sweeping in its provisions. It permits not only the establishment and operation of free tuberculosis sanatoria in all counties, but the employment of visiting nurses, the care of patients in their homes, the maintenance of free dispensaries and such other activities in the warfare against tuberculosis as the board of directors of the sanitarium may deem advisable.

One of the most active champions of the law and of its adoption by the various counties has been the State Federation of Women's Clubs and it has been expected that the women's vote would help very materially in the passage of the measure in various localities this fall.

In an opinion recently submitted by the attorney-general to the State Board of Health, the right of women to vote on this proposition depends entirely upon local conditions, so that while women may vote on the measure in some counties, in others they will not be permitted to do so.

The gist of the attorney-general's opinion is that, in case the three mill tax considered in the county tuberculosis sanitarium proposition does not cause the total county tax to exceed the constitutional seventy-five cents, women will be permitted to vote; but, in case the county tax already exceeds the constitutional seventy-five cents or is made to exceed it by the addition of the three mill tax for sanitarium purposes, women will not be permitted to vote.

Thus, depending entirely upon local conditions, women may be permitted to vote in some of the

counties of the state, while in others they will not be permitted to vote.

DRUGLESS PRACTITIONERS AND DEATH AND BIRTH CERTIFICATES.

In an opinion recently submitted by the attorney-general to the State Board of Health, it is held that osteopaths and other practitioners licensed to treat human ailments without the internal or external use of drugs or the employment of operative surgery, may sign death certificates under the provisions of the existing birth and death act. Incidentally, according to this opinion, they would have had the same right under the former act had the question ever been raised.

In signing death certificates, however, the attorney-general holds that the "other practitioners" cannot sign as physicians, but must designate the form of practice they follow and in virtue of which they are licensed, such as "osteopath," "chiropractor," etc.

In rendering his opinion the attorney-general holds that a liberal construction of the medical practice act, in which drugless practitioners are authorized to treat human ills, qualifies the drugless practitioner as a "physician" for the purposes of the birth and death act. Reference is made to a decision in the higher courts of New York, in which it was held that the term "attending physician," appearing in an insurance policy, would include the osteopathic practitioner who cared for the policyholder, although that practitioner was not permitted to designate himself as a "physician" in his advertising or otherwise.

Hence, the attorney-general holds that this liberal interpretation does not in any way invalidate that section of the medical practice act which prohibits "other practitioners" using the term physician in their printed matter. That section of the law, according to the attorney-general, was intended to protect the public by advising them of the character or limitations of the various practitioners.

It is also held, in this opinion, that midwives are not permitted to sign death certificates and that "other practitioners" are not authorized to sign birth certificates. The only condition under which an "other practitioner" may sign a birth certificate is that he be also licensed as a midwife, in which case he must sign the birth certificate as a midwife and neither as a physician or as an "other practitioner."

This decision settles questions, which for some time past have occasioned misunderstandings in the minds of local health officers and local registrars of vital statistics.

STATE DISTRICT HEALTH OFFICERS APPOINTED.

In furtherance of the reorganization of the State Health Department, the following civil service appointments have been made during May to important posts in the State Board of Health:

State epidemiologist, Dr. Edward S. Godfrey.

District health officer for the west state district, Dr. Clarence East, with headquarters at Galesburg.
Chief dairy inspector, Mr. Paul L. Skoog.

NEW STATE LABORATORY.

An important increase in the facilities of the State Diagnostic Laboratory Service was made during May by the opening of East State Laboratory at Champaign. This laboratory, under the direction of Dr. Sperry, will serve a tier of twenty counties in the eastern border of the state. With the central laboratory at Springfield, the northern state laboratory at Chicago and the south state laboratory at Mount Vernon, the service is made infinitely more effective for the health officers and physicians of the state.

SUMMER RESORT INSPECTION.

The annual harvest of typhoid fever, due to the summer vacation visits of city dwellers to insanitary summer resorts, has led to the establishment of a system of resort inspection throughout Illinois. This inspection is now under way and will be practically completed before the hot months of summer.

Notices are being served on resort owners to correct insanitary conditions and to provide reasonable safeguards for the public health. In some instances it was found that the sewage of resort hotels was discharged into nearby lakes, the sewer outlet being at times in immediate proximity to established bathing beaches.

After June 20 the sanitary status of any Illinois summer resort may be ascertained upon application to the State Board of Health and physicians will do well to advise their patients not to patronize resorts without first ascertaining the existing sanitary or insanitary conditions.

NEW EDITION OF STATE BABY CIRCULAR.

The popular booklet, "Our Babies—How to Keep Them Well and Happy," issued by the State Board of Health and which has already run through two large editions, has been thoroughly revised and edited and has appeared in a new edition of 50,000 copies. This circular can be obtained upon request made upon the secretary of the board at Springfield.

COMMUNICABLE DISEASES DURING MAY.

Within the past few months the physicians and health officers have fallen in with the new provisions for the reporting of communicable diseases to a most gratifying extent. In fact, the thoroughness with which reports are now being made leads to some confusion and misunderstanding in interpreting the number of cases on record. Careful investigation by the district health officers leads to the conclusion that preventable diseases are not unusually prevalent and yet the reports are so general that, were this not taken into consideration, one would assume that Illinois is undergoing a general epidemic of contagious disease.

Skeptical as we usually are of new things, the physicians and health officers and all others interested in the prevention and suppression of contagious diseases in the state are expressing themselves as in hearty sympathy with the present rules and regulations concerning such diseases. The reporting of measles, whooping cough and chickenpox is an entire innovation in Illinois, and yet this innovation is meeting with general approval of physicians and general commendation on the part of health officers.

Scarlet fever and smallpox have prevailed in a very mild form, many of the patients having no medical care and the cases, consequently, remaining unrecognized and unreported.

In Decatur ten cases of smallpox were reported during May, as compared with fourteen cases in April. In Danville there were eight cases in May, as compared with ten during April. In Dundee fourteen cases of smallpox were reported during May. In Peoria there were twenty-five cases of smallpox during May and in Springfield forty-nine cases.

The general prevalence of measles, noted throughout the state during the past few months, has somewhat subsided. The disease still prevails to an unusual extent at Canton, Galesburg, Waukegan, Quincy, Chicago, Galena, Griggsville, Joliet Township, Rockford and Springfield.

Toluca and East St. Louis report cases of cerebrospinal meningitis and Decatur reports three cases of poliomyelitis.

In Pana there have been thirty-nine cases of typhoid fever, the source of which seems to have been an infected milk supply. A special laboratory was established in Pana by the State Board of Health and the principal of the high school and a number of high school students were enlisted as laboratory assistants. An active educational campaign was carried on with the assistance of the local press.

Fifteen cases of typhoid fever at Tuscola were attributed to a well situated in a livery stable and which was very popular on account of the "fine quality" of the water. The "fine flavor" of the water of this well brings to mind the many instances of "mineral wells" which have come into high favor until it was ascertained that the mineral taste was due to just about such things as one would expect to find in a livery stable well.

DO YOU KNOW THAT

Rural sanitation is a health protection to the city-dweller?

It's foolish to educate a boy and then let him die of typhoid fever?

The U. S. Public Health Service issues a free bulletin on the summer care of infants?

Exercise in the garden is better than exercise in the gymnasium?

Clean water, clean food, clean houses make clean healthy American citizens?

The State of California has reduced its typhoid death rate 70 per cent. in the past ten years?

Rats are the most expensive animals which man maintains?

It is estimated that the average manure pile will breed 900,000 flies per ton?

DO YOU KNOW THAT

Efficient muzzling of dogs will eradicate rabies?

The protection of the health of children is the first duty of the Nation?

Bad temper is sometimes merely a symptom of bad health?

Insanity costs every inhabitant in the United States \$1 per year?

The U. S. Public Health Service has proven that typhus is spread by lice?

Untreated pellagra ends in insanity?

In the lexicon of health there is no much word as "neutrality" against disease?

The death rate of persons under 45 is decreasing; of those over 45 it is increasing?

DO YOU KNOW THAT

Today is always the best day to clean up?

Fresh air, food, rest—these three combat tuberculosis?

The U. S. Public Health Service has reduced typhoid fever 80 per cent. in some communities?

Overeating, constipation, lack of exercise, foul air, eye strain, may produce headache?

Polluted drinking water causes many deaths?

An efficient health officer is a good community investment?

Bad teeth, handicap children?

Insufficient sleep endangers health?

DO YOU KNOW THAT

Light promotes cleanliness?

A clean mouth is essential to good health?

Physical training in childhood is the foundation of adult health?

The U. S. Public Health Service issues publications on hygiene and sanitation for free distribution?

Isolation is the most efficient means of controlling leprosy?

Headache is Nature's warning that the human machine is running badly?

Bullets may kill thousands—flies tens of thousands.

Obesity menaces longevity?

DO YOU KNOW THAT

Life is a constant struggle against death?

Dirty refrigerators may make sickness?

The U. S. Public Health Service issues free bulletins on rural sanitation?

The defective citizen of today is oftentimes the unhealthy child of yesterday?

Every man is the architect of his own health?

It's the baby that lives that counts?

Tuberculosis is contagious, preventable, curable?

The full dinner pail—the open window—the clean well—make for health?

Auto Sparks and Kicks

LIGHTER COLORS ARE MOST EFFICIENT FOR CARS.

By M. C. HILLOCK.

The Automobile has consistently and with convincing logic set forth, in past issues, the drawbacks and disadvantages of the blacks and blues and greens, the two latter of the deepest shade, as colors for use upon automobiles. These pigments, it must be conceded, are, at the outset of their career on the surface of the car, and when given the full radiance of a fine fabric of varnish, exceedingly beautiful to behold, and if they could be made to wear on with the same magnificent effects, and at the minimum outlay of cleaning processes be maintained at a high rate of efficiency under the stress of everyday service, their value and usefulness would pass unquestioned. Unfortunately this is not the case, and wherever these colors are found doing service on the average American highway, there you may expect to find difficulty in keeping them clean and neat, and showing a reasonable amount of luster. Moreover, they are colors ground in japan, and therefore afflicted with a brittleness which under severe road and garage treatment is certain to suffer. They will, of course, give a better account of themselves if kept well protected under an ample supply of varnish, but in the face of all that may be done for them—speaking now of the colors used upon the cars exposed to the conditions of the average country and village highway—the tendency is to show a dingy, unkempt, and generally unsatisfactory appearance.

Must Consider Conditions.—The exception to this rule is the color used upon the car employed for service upon city pavements, where the conditions of service are of a modified order, as compared to those encountered in the rural districts. These black, deep blue and green colors require a dressing-up with some of the ornamental embroidery of relief colors to take them from under the funereal aspects which such field colors always invite. In other words, they require an artificial stimulation to keep them in presentable condition for even a temporary show.

In respect to the employment of lighter colors, such, for example, as maroon, some of the browns, the grays, creams, wine and the lakes. These colors, some of them also ground in japan,

have the important advantage of being comparatively easy to clean up and to be kept clean. Also, they retain their brilliancy of effect to the maximum limit. *They show dirt less* than darker colors, and respond to the cleaning operations quicker. They render service in proportion to the attention bestowed upon them, but at the same time they flourish under neglect and display color effects that would make the darker pigments look like a vain show. *The grays, and the creams, and lighter yellows, all are permanent pigments by virtue of the ingredients composing them, white lead being an important one,* and a basic feature of the greatest value as a surfacing medium. Such a pigment, naturally supple and elastic, imparts to the color a surfacing property, a density of fiber and film, and an elasticity quite unsurpassed, and explains the tenacity and the durability which characterize these pigments with a pronounced lead base. Give these colors a proper fabric of varnish, and a decent measure of care taken, including proper washing processes, and the service they will render cannot fail to equal that of the very best pigments.

Stand Washing Well.—Practically all these colors stand washing and cleaning operations excellently, which may be accepted as evidence of their durability and strength of film. Likewise, they show road dirt and the accumulations of the highway less than the dark colors. They require less of the ornamental effects to bring them into notice, the field color being capable of making an impression without the aid of any ornamental lines, although, of course, these lines serve to lighten the effect and bring into greater relief the true and distinctive character of the field color.

White Lead Gives Elasticity.—All colors having a portion of white lead in their composition may be accepted as pigments of an elastic nature, and capable, under reasonable conditions, of giving a masterful measure of durability, at the least possible outlay on cleaning and renovating. The black and the darker colors referred to fail in the capacity to stand the renovating processes without detriment, especially when the protection of varnish has become of no effect, whereas the lighter colors bear these erosives with fewer indications of injury to their luster and general appearance. In making choice of color for the car, its class of service may well govern the selection. —*The Automobile.*

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY.

C. J. Whalen, M. D., president; A. A. O'Neill, M. D., president-elect; C. E. Humiston, M. D., secretary; J. S. Nagel, M. D., treasurer.

FIFTH MEETING OF ALIENISTS AND NEUROLOGISTS.

FOR THE DISCUSSION OF MENTAL DISEASES IN THEIR VARIOUS PHASES.

June 19 to 23, 1916.

Headquarters, La Salle Hotel,

Meetings and Social Sessions held at this Hotel.
Wm. O. Krohn, Chairman; W. T. Mefford, Secretary.

Monday Morning, 9 a. m., June 19, 1916.

Address by the Chairman, Dr. Wm. O. Krohn, Chicago.

Welcome address by the President of Chicago Medical Society, Dr. A. A. O'Neill, Chicago.

Address: Judge Harry Olson, Chief Justice Municipal Court, Chicago.

Trends and Instincts in the human life; their influences upon Mental Integrity, Dr. Edward Mayer, Pittsburgh, Pa.

Will Physiological Chemistry Solve the Etiology of Idiopathic Mental Diseases? Dr. Moreland Owensby, Baltimore, Md.

Heredity as a Cause of Mental Disease, Dr. A. J. Rosanoff, Long Island, N. Y.

The Dynamics of Life, Dr. T. Burrow, Baltimore, Md.

Monday Afternoon, 2 p. m., June 19, 1916.

The Question of the Recoverability of Dementia Præcox, Dr. Theo. Diller, Pittsburgh, Pa.

Adrenalin Mydriasis as a Differential Diagnostic Sign in Dementia Præcox, Drs. Ralph M. Chamber and Solomon Fuller, Westboro, Mass.

Recent Studies in Dementia Præcox, Dr. Bayard Holmes, Sr., Chicago, Ill.

Alcohol and Its Relation to Epilepsy and Allied Convulsive Disorders, Dr. D. A. Thom, Palmer, Mass.

Alcohol Acidemia, Dr. Samuel Stern, Atlantic City, N. J.

The Time Element in the Treatment of Drug and Alcoholic Addictions, Dr. C. B. Pearson, Arlington, Md.

Alcoholic Psychosis; Points in Differential Diagnosis, Dr. M. C. Hawley, Elgin, Ill.

Problem of the Drug Addicts, Dr. H. J. Cahagan, Elgin, Ill.

Infantile Dementia in Syphilitic Children, Dr. Archibald Church, Chicago.

Tuesday Morning, 9 a. m., June 20, 1916.

A State Campaign Against Syphilis, Dr. W. F. Lorenz, Mendota, Wis. Discussion by Dr. W. A. Evans, Chicago; Dr. John Dill Robertson, Health Commis-

sioner, Chicago, and Dr. St. Clair Drake, Secretary, State Board of Health.

Report of a Case of Juvenile General Paresis, Dr. Fred C. Potter, Indianapolis, Ind. Discussion by Dr. H. F. Leonard, Lincoln, Ill., and Dr. Grulee, Chicago.

Various Conditions Otherwise Diagnosed Which Ultimately Proved to Be Syphilitic, Dr. Edward F. Leonard, Chicago, Ill.

Clinical and Pathological Report of a Case Resembling Multiple Sclerosis, with Findings of Syphilis, Dr. Lawson G. Lowrey, Hawthorne, Mass.

Combined Sclerosis and General Paresis; with a Discussion on the Similarity of Certain Changes in the Paretic Cortex to the Characteristic Lesions of Multiple Sclerosis, Dr. Solomon Fuller, Westboro, Mass. Discussion by Dr. Harold N. Moyer, Chicago, and Dr. Wm. Pusey, Chicago.

Treatment of Cerebro Spinal Syphilis, Dr. Chas. D. Humes, Indianapolis, Ind. Discussion by Dr. G. Wilse Robinson, Kansas City, Mo.; Dr. Wm. Pusey, Chicago; Dr. Oliver Ormsby, Chicago, and Dr. Louis D. Smith, Chicago.

Treatment of Paresis by the Intraventricular Route, Dr. C. F. Read, Watertown State Hospital, East Moline, Ill. Discussion by Dr. Henry A. Cotton, Trenton, N. J.

Intraspinal Mercurial Treatment, Dr. Geo. W. Hall, Chicago.

Dr. M. N. Voldeng, (title to be announced later).

Tuesday Afternoon, 2 p. m., June 20, 1916.

Postoperative Psychoses, with Case Report, Dr. Wm. Lee Secor, Kerville, Tex.

The Essential Nature and Treatment of Psychos-thenia, Dr. Geo. E. Price, Philadelphia, Pa.

Incipient Psychoses, Dr. E. H. Moody, Moody's Sanitarium, San Antonio, Tex.

Postoperative Psychoses in the Female, Dr. Chas. Frischbier, Brooklyn, N. Y.

Report of a Case of Psychasthenia; Analysis and Cure, Dr. Meyer Solomon, Chicago, Ill.

Moral Insanity, Dr. E. L. Parker, Excelsior Springs, Mo.

The Influence of Environment and Personality Upon Delusions, Dr. Chas. Ricksher, Kankakee, Ill.

Wednesday Morning, 9 a. m., June 21, 1916.

A MODERN HOSPITAL FOR THE INSANE.

Committee: Mr. A. L. Bowen, Secretary, State Board of Charities, State of Illinois, chairman; Mr. A. W. Butler, State Board of Charities, Indianapolis, Ind.; Katherine Williams, St. Paul, Minn.

The Problem of the Budget, Dr. Harold N. Moyer, Chicago.

From the Standpoint of Architecture and Plans:

Plumbing, heating, toilet facilities, floors for water sections, day rooms and dormitories, light, heat and ventilation, Richard E. Schmidt, Garden and Martins, architects. Discussions by Herbert Foltz, architect, Indianapolis, Ind.; Jerry L. Sweet, architect, Majestic building, Milwaukee, Wis., and Frank E. Baker, manager, Hospital Department, for J. B. Clow & Sons, Chicago.

The One-Story Cottage, Dr. W. C. Van Nuys, New Castle, Ind.

The Colony Idea, Dr. S. E. Smith, Richmond, Ind.

From Standpoint of Patients:

Mechanical restraint, seclusion, open wards, parole, Dr. H. P. Sights, Hopkinsville, Ky.

Employment and Recreation, Dr. Carl W. Sawyer, Marion, O.

Diet and Dining-room Service, Dr. Chas. Pitcher, Kings Park, L. I.

Bathing and Toilet Facilities, Dr. H. J. Gahagan, Elgin, Ill.

Clothing and Methods of Manufacture, Dr. Starr Cadwallader, Cleveland, O.

Wednesday Afternoon, 2 p. m., June 21, 1916.

From Standpoint of Employees:

Merit System and Permanent Tenure, Eight-hour Day, One Day in Seven of Rest and Automatic Wage Increase, Dr. F. J. Kern, Belleville, Ill.

Should They Live in the Institution or Off Grounds? Dr. A. L. Kilbourne, Rochester, Minn., and Dr. Rock Sleyster, Waupun, Wis.

The Duties of the State to the Medical Attendants, Dr. M. C. Hawley, Eling, Ill.

Entertainment and Recreation, Miriam E. Carey, State Board of Control, St. Paul, Minn., and Dr. Eugene Cohn, Chicago State Hospital, Dunning, Ill.

From Standpoint of Nursing:

The Training School, Miss Mae Kennedy, Kankakee, Ill., and Dr. Edw. F. Leonard, Chicago.

The Beginning Attendant and How to Develop, Dr. Robt. Work, Pueblo, Colo., and Dr. C. C. Ellis, Chicago State Hospital, Dunning, Ill.

Commencement Day and Its Significance, Dr. Geo. Leininger, Chicago State Hospital, Dunning, Ill.

Women on Male Wards, Dr. Geo. Zeller, Springfield, Ill.

Thursday Morning, 9 a. m., June 22, 1916.

From Standpoint of Medical Service:

Classification of Patients—Individualization, Dr. Frank P. Norbury, Springfield, Ill. Discussion by Dr. Robt. Kershaw, Chicago State Hospital, Dunning, Ill.

Staff Meetings and Duties of Members, Dr. Richard E. Dewey, Wauwatosa, Wis., and Dr. Geo. Zeller, State Alienist, Springfield, Ill.

Research and Educational Work, Dr. Albert E. Sterne, Indianapolis, Ind., and Dr. H. Douglas Singer, Kankakee, Ill.

Social Service—Out Patient and After Care, Dr. Chas. P. Emerson, Indianapolis, Ind.

The Chronic Service, Dr. E. W. Milligan, North Madison, Ind.

Industrial Education of the Chronic Insane, Dr. Frank Billings, Chicago, Ill. Discussion by Dr. H. N. Moyer, Chicago, and Dr. Henry A. Cotton, Trenton, N. J.

Psychiatry, Dr. W. F. Lorenz, Mendota, Wis. Discussion by Dr. Harrison L. Mettler, Chicago.

The Insane Criminal, Dr. Paul E. Bowers, Michigan City, Ind.

Hydrotherapy, Dr. J. H. Kellog, Battle Creek, Mich.

Thursday Afternoon, 2 p. m., June 22, 1916.

Report of Committee on Feeble Mindedness, Dr. A. C. Rogers, Faribault, Minn., chairman; Dr. H. F. Leonard, Lincoln, Ill., secretary. General discussion.

The Treatment of Asthenic Conditions in Children, Dr. E. B. McCreedy, Wildwood, Pa.

What Education of the Feeble Minded Amounts to, Dr. Geo. Bliss, Ft. Wayne, Ind.

The Delinquent Defective in the Institution for Feeble-Minded, Dr. C. B. Caldwell, Lincoln, Ill.

Insanity and Feeble-Mindedness: Medico-legal Problems Connected with Them, Dr. Thos. J. Orbison, Los Angeles, Cal. Discussion by Judge Harry Olson, Chicago.

The Wasserman Test in Feeble-Minded, Dr. W. J. Hickson, Psychopathic Laboratory, Chicago.

Friday, 9 a. m., June 23, 1916.

Report of a Case of Bilateral Lenticular Degeneration, Dr. M. A. Bahr and F. C. Potter, Indianapolis, Ind.

Report of Cases of Folie de deux, Dr. S. N. Clark, Kankakee, Ill.

The Treatment of Tic Douloureux, Some Clinical Reports, Dr. G. Wilse Robinson, Punton Sanitarium, Kansas City, Mo.

Conjugal Tabes Dorsalis, Dr. T. B. Throckmorton, Des Moines, Ia.

An Unusual Neurological Case, Dr. C. B. Reitz, State Hospital, Allentown, Pa.

What Can Be Done for the Chronic Insane? Dr. Amy M. Peterson, Jacksonville, Ill.

Lesions of the Temporal Lobe Involving the Naming Center, Dr. Edward Mercer Williams, Sioux City, Ia.

Friday, 2 p. m., June 23, 1916.

The Psychology of the Criminal Under the Sentence of Death, Dr. Paul E. Bowers, Michigan City, Ind.

Compulsory Typhoid Vaccination in a State Hospital Epidemic, Dr. Philip B. Newcomb, Osawatomie State Hospital, Osawatomie, Kan.

Treatment of Mental Cases in General Hospitals, Dr. Tom A. Williams, Washington, D. C. Discussion by Dr. Ralph Hamill, Chicago, and Dr. H. N. Moyer, Chicago.

The Duty of the State to Its Dependents, Dr. Sidney D. Wilgus, Rockford, Ill.

"The State Hospital," Its Purposes, Limitations and Handicaps, Dr. Wm. Hotchkiss, Jamestown, N. D.

Epilepsy, Dr. Wesley Taylor, Detroit, Mich.

Difficulty in Determining Responsibility in Epileptic Amnesic Attacks, Dr. Geo. Donohoe, Cherokee, Ia.

Notice.—Those appearing on the program the last day—Friday—will be called upon first, in the absence of those placed earlier on the program.

Each paper to be discussed separately.

CHICAGO MEDICAL SOCIETY

Regular Meeting, May 3, 1916

1. "What Is Military Surgery?" Major G. M. Blech, Medical Corps, Illinois National Guard.

2. "Training of a Medical Officer," Major James M. Phalen, Medical Corps, United States Army.

Discussion: Lieut.-Col. W. N. Banister, Lieut.-Col. Jacob Frank, Col. Wm. Stephenson, Major P. J. Sullivan, Major W. J. Swift.

Public Welfare Meeting, May 10, 1916

"Moving Picture Demonstration of the Activities of the Living Organisms of Syphilis and of the Sleeping Sickness," Wirt W. Hallam, Secretary, Illinois Vigilance Association.

Regular Meeting, May 24, 1916

"The Problem of Vaccine Therapy," G. H. Sherman, Detroit, Mich.

Discussion: Adolph Gehrmann, Joseph Miller, Joseph F. Biehn, Maximilian Herzog, Benj. Gruskin.

Regular Meeting, May 31, 1916

1. "Surgical Treatment of Acute Epididymitis," (Report of Cases), Charles M. McKenna.

2. "Syphilis in Women," George Gellhorn, St. Louis, Mo.

3. "The Action of Radium Rays on Inoperable Uterine Carcinomata" (With Lantern Slide Demonstration), Henry Schmitz.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held February 14, 1916, with the president, Dr. William E. Gamble, in the Chair.

Dr. Harry S. Gradle reported a Case of Conjunctivitis Hypertrophica Plasmocellularis, and exhibited the patient.

DISCUSSION.

Dr. Francis Lane stated that the sections of the tissue given him by Dr. Gradle were not satisfactory, owing to imperfect paraffin embedding. However, all the layers of the conjunctiva were hypertrophied. The epithelium was thickened and contained numerous goblet cells throughout. Those in the superficial layers of the epithelium were the larger and appeared to have open stomata, as if expelling their contents.

These cells were first described by Stieda a number of years ago and were increased materially in chronic conditions of the conjunctiva and have been compared with the cells of the mammary gland in that they are not deformed after expelling their contents. They are true unicellular mucous glands and it is because of their integrity that the epithelium does not desiccate after the extirpation of the lachrymal glands.

The basement membrane is rather wavy and the sub-epithelial stratum is infiltrated with both large and small plasmic cells with a certain amount of connective tissue formation, indicating a chronic process.

The so-called fibrous stratum, instead of consisting of dense connective tissue, is markedly infiltrated with small, round cells and fewer large fainter staining cells almost like epithelial cells undergoing degeneration.

In no sense of the word does the microscopic picture resemble trachoma, follicular conjunctivitis, spring catarrh or tuberculosis, but more like lymphoid hypertrophy of both layers of the substantia propria.

Dr. Harry S. Gradle, in closing the discussion, stated that a case, very thoroughly studied, was reported by Elschnig in the *Medizinische Klinik* of 1914. This was an acute case, therein differing from the others, which were of the sub-acute or chronic type. In Elschnig's case, which was treated

for over five months, a cure only followed complete excision of the transitional folds and a large portion of the conjunctiva. The blood picture returned to normal shortly after the patient was cured. The pre-auricular and submaxillary lymphatic glands in this patient were extirpated and found to consist of lymphoid hyperplasia; consequently Elschnig considered this a local manifestation of a general disease affecting the lymphoid-producing structures of the conjunctiva, the infection manifesting itself by swelling of the pre-auricular and cervical glands and by a peculiar plasmocellular hypertrophy of the conjunctiva. We cannot take it for granted that a generalized infection is essential here, because the conjunctiva in itself is a part of the hematopoietic system, in that it can produce new lymphocytes; we, therefore, are dealing probably with a localized rather than generalized condition.

The speaker said he would follow the suggestion of Dr. Suker of massaging with 10 per cent. ichthyol ointment, because the boy has shown improvement under 2 per cent. solution of ichthyol. Before he attempts excision of the transitional folds he will try this.

CYST OF THE IRIS.

DR. FRED W. BAILEY, Cedar Rapids, Iowa: The patient is Miss C., aged 16, whom I brought here with a provisional diagnosis of cyst of the iris following traumatism. This girl was injured eight years ago by a punctured wound which penetrated the cornea in the upper nasal quadrant for a distance of one-eighth of an inch. She was incapacitated for two weeks at the time, and from that time on she noticed nothing wrong with the eye until last November, when she was husking corn in the field, and one of the men in throwing a near of corn in the wagon, accidentally threw it against her eye and caused pain. She said her sister looked at the eye and noticed a growth in it which almost covered the entire pupil, as she stated.

I saw the patient three weeks after this, at which time there was a growth in the anterior chamber which almost filled the entire pupillary area. After introducing homatropin and dilating the pupil, I noticed there was not only a growth in the anterior chamber, but one in the posterior chamber, which was a little lower down, and also toward the nasal side, and which was pigmented. Those who saw the case noticed the growth in the anterior chamber as non-pigmented and absolutely translucent, while the one in the posterior chamber is pigmented.

I brought the patient before the Society because I was rather undecided just what to call it. I have called it a cyst of the iris, but I am undecided as to the nature of the growth in the posterior chamber, wondering whether it might be malignant because of the pigmentation.

(To be continued.)

FULTON COUNTY.

The seventy-fifth meeting of the Fulton County Medical Society was held in the Auditorium of the Y. M. C. A. Building in Canton and was called to order May 9, at 1:30 p. m., by President Allison.

The special fee bill committee appointed at the last meeting reported that nothing had been accomplished.

On motion the committee was discharged and the

president appointed Drs. Adam and Gray to confer with the Board of Supervisors regarding the County Fee Bill.

Communication from State President Lillie concerning reorganizing the Medical Department of the United States Army was read.

Stoops and Howard moved that the Fulton County Medical Society favor the above and so instruct their Delegate.

Dr. Howard presented a paper, "Roentgen Ray Observations of the Appendix with Special Reference to Technique," with illustrations.

Dr. E. P. Coleman presented "Report of Some Interesting Cases of Acute Nephritis Following Streptococcus Grippé Infection."

These two papers were freely discussed and the authors received a unanimous vote of thanks.

Sixteen members were present.

Adjourned.

D. S. RAY, Secretary.

JO DAVIESS COUNTY.

The Jo Daviess County Medical Society met in the Masonic Hall, Stockton, April 26, 1916, at 1 p. m. In the absence of the president Dr. I. C. Smith acted as president pro tem.

Upon roll call the following responded: Nadig, Stafford, Runkle, Snyder, Smith, D. G., and Smith, I. C., with Drs. Holke of Freeport and Shook of Pearl City as visitors.

The minutes of the previous meeting were read and approved.

The secretary and treasurer's report was read as follows: The society has held three regular meetings during the past year with an average attendance of twenty-one physicians present. Receipts for the year amounted to \$119.03; expenditures for the year amounted to \$88.00, leaving a balance in the hands of the treasurer of \$21.03.

Election of officers for the ensuing year resulted as follows: President, A. T. Nadig; vice-president, G. M. Tyrrell; secretary and treasurer, T. J. Stafford; censor for one year, F. W. Boots; censor for two years, I. C. Smith; delegate, D. G. Runkle; alternate, E. M. Bench.

After the business part of the meeting was completed Dr. K. F. Snyder of Freeport read a very modern and interesting paper on the "Cure of Tuberculosis of the Spine by Means of Bone Grafting." The doctor reported a case which he treated by the above method which he hoped to bring to the society at some future meeting. On account of bad road condition Drs. D. F. Downing and J. H. Shrup were unable to be present to read their papers.

The society adjourned to meet in Galena in July.

A. T. NADIG, Secretary.

LA SALLE COUNTY.

The sixty-third annual meeting of the La Salle County Medical Society was held at Ottawa, Ill., on Tuesday, April 25, 1916. The Ottawa City Medical

Society invited the La Salle County Medical Society to a dinner. An excellent program was offered, and an unusually good meeting was held. The program was as follows:

Treatment of Fracture of the Femur, Dr. J. H. Edgcomb, Ottawa.

Diagnosis and Treatment of Gastric Ulcer, Dr. W. J. Butler, Chicago.

Tumors of the Breast (Illustrated by lantern slides), Dr. Fredric A. Besley, Chicago.

Back Ache, Acute and Chronic, from a medical standpoint (Illustrated by lantern slides), Dr. P. B. Magnuson, Chicago.

Diagnosis and Treatment of Acute Appendicitis (Conclusions based on 20 years' of clinical experience), Dr. E. P. Cook, Mendota.

Tuberculin, Dr. L. J. Quillan, Streator.

MADISON COUNTY.

Our Annual Banquet.

If you were not present at our annual banquet given at the St. James Hotel on the evening of May 4, you certainly missed a very enjoyable occasion. Music, both instrumental and vocal, was furnished by three young ladies, the daughters and a guest of our hostess, which was highly appreciated and added not a little to the enjoyment of the evening.

It was the best attended of any of our banquets and proved to be a highly enjoyable function. Forty-six guests sat down to the feast and there was no lack of good things to eat. No business meeting was held and after the address of welcome the speaker of the evening, Dr. Willard Bartlett, of St. Louis, was introduced, who delivered a very fine address on "The Physician and the Community at Large." After a hearty vote of thanks to our speaker, the society adjourned to meet at Beverly Farms, Godfrey, Ill., on June 2, 1916, to which meeting Dr. W. H. C. Smith, our host, issued an invitation to all of our members and their ladies.

Those present at the banquet were: Dr. and Mrs. R. D. Luster; Dr. and Mrs. E. A. Cook; Dr. and Mrs. W. H. C. Smith; Dr. and Mrs. H. C. H. Schroeder; Dr. and Mrs. E. C. Ferguson; Dr. and Mrs. Chas. R. Kiser; Dr. John R. Sutter, Jr., and Mrs. John R. Sutter, Sr.; Dr. and Mrs. J. B. Hastings; Dr. and Mrs. R. S. Barnsback; Dr. and Mrs. Willard Bartlett; Dr. and Mrs. E. W. Fiegenbaum and Miss Edna Fiegenbaum; Dr. and Mrs. L. G. Burroughs; Dr. and Mrs. J. H. Siegel; Dr. and Mrs. J. A. Hirsch; Dr. and Mrs. Chas. G. Schmidt; Dr. Jos. Pogue and Miss Kathryn Pogue; Dr. Fred Wade Jones and Miss Mary Krome; Dr. and Mrs. O. C. Church; Dr. and Mrs. Louis H. Hayes; also Dr. R. W. Binney, Dr. F. O. Johnson, Dr. F. W. Kerchner, Dr. L. C. Schreifels; Dr. Mather Pfeifferberger, Dr. H. E. Wharff and Dr. J. Morgan Sims.

National Delegate.

Madison County will be represented at the Detroit meeting of the American Medical Association, June 12 to 16. Dr. Mather Pfeifferberger, of Alton, is

a member of the National House of Delegates, having been chosen by the Illinois Medical Society as one of the state representatives. He is planning to be there throughout the session.

MORGAN COUNTY.

Morgan County Medical Society met at the Library, Jacksonville, April 13, 1916, with Dr. Hardesty, president, in the chair. Meeting called to order at 8 p. m.

Dr. Grace Dewey was elected vice-president to fill vacancy, Dr. E. A. Foley, former vice-president, having removed to Watertown.

Dr. Black announced the status of the Library account.

The program was a symposium on tuberculosis. The subject was opened by Dr. H. C. Woltman on the "Clinical Symptoms." He emphasized the necessity for the early recognition of the disease.

Dr. Grace Dewey read a paper on "X-Ray Diagnosis and Tuberculin Treatment." Dr. Cole took the "Clinical Diagnosis" and Dr. Josephine Milligan closed the subject with a paper on "The Social Aspect." The papers were extensively discussed by the physicians present.

Meeting May 11, 1916.

After the business session Dr. F. A. Norris read a paper on "Post-Operative Thrombus and Embolus," showing probable cause and clinical manifestations, with report of pulmonary and cerebral cases. The subject was freely discussed by the members present with several other case reports.

THOMAS G. McLIN, Secretary.

PIKE COUNTY.

The Pike County Medical Society held its annual meeting at the Pittsfield House, Pittsfield, April 27. There was a large attendance and much interest shown in both the program and the business session following it. On account of bad roads many who expected to motor in from a long distance were unable to do so.

The program was furnished by two well-known members of the State society, Dr. Frank Norbury of Springfield and Dr. Carl Black of Jacksonville. The first took as his subject, "Sleep and Its Disorders"; the second, "War and Peace." The first was well illustrated with charts and diagrams; the second, by means of lantern slides and the stereopticon. Those who missed these papers certainly missed a scientific treat. Want of space prevents a resume of these papers, which they richly deserve.

Dr. Lillie of East St. Louis was expected to be present and speak on the subject of "The Cancer Problem," but was unable to be present. Dr. Center of Quincy, Councilor of the Sixth district, was also unable to attend.

The society passed resolutions approving the plan of the reorganization of the Medical Department of the U. S. Army. The approval of the contemplated amendment of the Medical Practice Act was endorsed.

The board of censors for the ensuing year consists of Drs. Rainwater, Kaylor and Lacy. One new appli-

cation for membership was presented at this meeting.

The Red Cross committee for the ensuing year consists of Drs. R. P. Wells, Goodin, Goodman, Smith and Shastid.

Officers elected for 1916-17: Dr. R. P. Wells, Pleasant Hill, president; Dr. J. R. Pollock, Nebo, vice-president; Dr. W. E. Shastid, Pittsfield, secretary-treasurer.

Copy of resolutions on the death of Dr. L. J. Harvey, Griggsville, was mailed his bereaved family and entered on the minutes of the society.

The next meeting of the society is a joint one with the Pike County (Mo.) society at Pleasant Hill, July 27. A big "fish-fry" is on hand and all members invited.

W. E. SHASTID, Secretary.

Personals

Dr. A. Lee Alderson has located in Pana.

Dr. A. A. Crooks has removed from St. Louis to Peoria.

Dr. John D. Witt has removed from Freeport to Aurora.

Dr. I. W. Bach has removed from Champaign to Pontiac.

Dr. F. B. Van Wormer has removed from Alton to Lincoln.

Dr. F. E. Ellison has removed from Argyle, Ill., to Monticello, Minn.

Dr. R. J. Coultas was appointed city health officer of Mattoon on May 22.

Dr. F. J. Haessler was elected president of the Chicago Heights Country Club May 3.

Dr. P. J. H. Farrell has removed to new offices at 25 East Washington street, Chicago.

Dr. John H. Murphy, Chicago, is doing post-graduate work this summer at various hospitals.

Dr. Paul G. Pomeroy, district physician at Gatun in the Canal Zone, is visiting at Lawrenceville.

Dr. G. F. Johnson, formerly of East Moline, has returned to that city after several years in Los Angeles.

Dr. Anna Windrow Holm addressed the Medical Woman's Club, Chicago, on "Parental Influence," May 10.

Dr. H. F. Lotz has returned to Lemont after a sojourn of several months in Arizona and California for his health.

Dr. H. B. Moe has removed from Rockford to Poplar Grove, succeeding Dr. George Markley, who goes to Belvidere.

Dr. W. E. Scarborough, of Sullivan, has enlisted in a Canadian Medical Corps with a hope of seeing service in Europe.

Dr. John T. Montgomery, Charleston, formerly a trustee of the State University, is reported to be critically ill as the result of a fall.

Dr. O. W. Hewitt, of Flanagan, has sold his practice to Dr. E. V. Wilcox and has removed to Pontiac, where he will start a sanitarium.

Dr. Walter A. Gekler has assumed the position of medical director of the Municipal Tuberculosis Sanatorium, succeeding Dr. John W. Coon.

Dr. John W. Coon will, it is understood, build and manage a private tuberculosis sanatorium in the lake region of Waukesha county, Wis.

Dr. Walter E. Scarborough, Sullivan, formerly coroner of Moultrie county, has accepted a position as surgeon with the Canadian troops.

Dr. James B. Herrick delivered an address at the annual graduating exercises of the Rockford Hospital Training School for Nurses June 2.

Dr. H. G. W. Reinhardt, coroner's physician, stands to lose a nice fee of \$100 for testifying in an insurance case, owing to the coroner's edict.

Dr. Ameen U. Fareed addressed the Cook County Real Estate Board, May 16, on his experiences as a Red Cross physician in the war in Europe.

Dr. Ethan A. Gray has been appointed a member of the committee on business management of the Chicago Municipal Tuberculosis Sanatorium.

Dr. Harry A. Salzman, Chicago, has given up private practice to accept a position as surgeon in the United States Coast and Geodetic Survey at Manila, P. I.

Dr. R. M. Curtiss, Marengo, recently settled for \$800 a judgment he secured for \$1,500 against the county for attendance on smallpox cases. His original claim was for \$4,700.

Dr. John S. Nagel made an address before the Livingston County Medical Society at Pontiac, May 4, on "The Senile Prostate," and Dr. Paul Gronnerud, an address on "Hysterectomy."

Dr. Orville W. McMichael has been elected, by the Chicago Tuberculosis Institute, attending physician of the Edward Sanatorium, Naperville, succeeding the late Dr. Theodore B. Sachs.

Dr. James F. Churchill has removed from 104 South Michigan boulevard, Chicago, to San

Diego, California. The best wishes of many professional and social friends will follow him.

Dr. Charles A. Elliott spoke before the Sangamon County Medical Society at Springfield, April 24, on "Gastric Secretions, Motility, Technic and Value of the Fractional Test Meal."

Dr. H. Douglas Singer, director of the State Psychopathic Institute, Kankakee, spoke before the Pittsburgh Neurological Society, May 4, on "Dynamic Psychology and the Practice of Medicine."

Dr. Alexander S. Rochester, after spending a year in California, has returned to his former office at 7 West Madison street, Chicago. He has been appointed assistant ophthalmologist and otologist to St. Luke's hospital.

Dr. Eugen Cohn, assistant superintendent of the Kankakee State Hospital and recently transferred to the Chicago State Hospital, was the guest of honor at a dinner tendered him by the staffs of the Kankakee State Hospital and Psychopathic Institute, April 27.

Dr. Wm. J. Uppendahl writes in an interesting manner of his experiences in the 23rd General Hospital, B. E. F., "somewhere in France," one of his aphorisms is: "If you meet any of those advocates of unpreparedness, put them out of their misery."

Dr. W. E. J. Michalet, Chicago, a graduate of Rush, class of 1879, has been twice attacked by robbers within three years and was held up once. The latest attack occurred May 8 in his office, where two men exchanged shots with the doctor, who chased them down stairs to the street. Two patients were severely wounded by the fusillade.

Dr. William Healy of the Cook County Psychopathic Institute delivered an address before the Chamber of Commerce of Des Moines, May 3, and in the afternoon delivered a public lecture under the auspices of the Chamber of Commerce, the City Federation of Teachers and the Board of Education.

Dr. George F. Suker spoke on "The Eye Symptoms in Disease of the Hypophysis" from the standpoint of the general practitioner, and Dr. Frank E. Simpson delivered an address on "Radium in the Treatment of Cancer and Various Diseases of the Skin," before the Linn County Medical Society at Cedar Rapids, April 26.

After a three years' study of Neurology and Psychiatry in Germany and England, Dr. J. Elliott Royer has returned and has located in Chicago. Since the war he served in the Neurological Military Service in the London hospitals. At the annual meeting of the Chicago Neurological Society, May 18, Dr. Royer read a paper on "Cerebral Injuries of Warfare as Observed in the London Hospitals." His address is 30 North Michigan boulevard.

News Notes

—Peoria has a new Isolation hospital at Waterworks Point with accommodations for 24 patients.

—The Elgin Physicians Club elected Dr. H. E. Kerch of Dundee, president; Dr. H. Knight, Jr., secretary and treasurer, and Dr. H. K. Scatliff, chairman of the executive committee.

—A new branch laboratory of the state board of health was opened, May 15, at Champaign, under the charge of Dr. F. S. Sperry. The new laboratory is to be known as the East State Laboratory.

—The State Board of Administration is said to have established a leper colony at Watertown. One patient is now installed there and it is probable that other cases developing in the state will be cared for at the same place.

—The press referred to Charles Van Dyke Waters, recently convicted of wife murder at Charleston as a physician. It is to the credit of the profession that his name is not to be found in any official list of licensed physicians.

—Owing to the withdrawal of troops from their regular stations for duty on the Mexican border, the War Department has been compelled to abandon the camps of instruction for officers of the Medical Reserve Corps, that were to be held during the coming summer.

—The Howard Taylor Ricketts prize for research work done by students in the Departments of Pathology and Bacteriology of the University of Chicago, which is awarded each year on May 3, the anniversary of Dr. Ricketts' death from typhus fever, has this year been awarded to Oscar J. Elsesser.

—The Crane Company of Chicago is making extensive improvements at its sanatorium, Buffalo Rock. Dr. Andrew M. Harvey, Chicago, is in active charge and has taken up a plan with the company for the housing of women and children and families. Heretofore provision has been made only for men.

—Members of the Municipal Tuberculosis Sanitarium staff, who resigned after the change in management, are reported to have located as follows: Dr. Martin I. Marshak is superintendent of the Jewish Consumptive Relief Society Sanatorium, Edgewater, Colo.; Dr. Francis F. Callahan has a position on the staff of the Sea View Hospital, New York; Dr. Arthur G. Comp-ton is on the staff of the Washington, D. C., Consumptive Hospital, and Dr. Robert G. Allison is to be superintendent of the Pokegama Sanatorium near St. Paul, Minn.

—On May 9 to 11 the ceremonies celebrating the fiftieth anniversary of the founding of the Alexian Brothers' Hospital were held. Since the foundation of the hospital by Brother Bonaventure Thelen in 1866, more than 100,000 patients have been treated in the hospital. The anniversary commenced with pontifical high mass conducted by the Archbishop of Chicago, and, in connection with the ceremonies, several of the brothers were especially honored. A large hospital fund is being raised in connection with the jubilee and the hospital will be opened to friends and supporters of the institution and to the public at large.

Marriages

W. H. EVANS, M. D., to Miss Louise Borgers, both of Murphysboro, on May 23, 1916.

OSCAR G. FISCHER, M. D., to Miss Charlotte Louise Ferguson, both of Chicago, April 24.

ABRAHAM MORRIS SIEGEL, M. D., Chicago, to Miss Rachel Fred of Lebanon, Ohio, April 9.

AUDREY GOSS, M. D., Chicago, to Mr. T. J. Morgan of Washington, D. C., at Wytheville, Va., April 16.

LOUIS BERNARD KNECHT, M. D., Poplar Bluff, Mo., to Miss Lottie Oughton of Belleville, Ill., April 19.

WINIFRED A. YELTON ROBB, M. D., to Judge James P. Jack, both of Newton, Ill., at Danville, Ill., March 29.

MARTIN H. MERBITZ, M. D., Chicago, to Miss Norma Helen Irasek, Milwaukee, at Milwaukee, May 17, 1916.

LOUIS WILLIAM DUNAVAN, M. D., to Mrs. Elizabeth M. Wright, both of Chicago, at Valparaiso, Ind., April 17.

Deaths

LEWIS D. WILEY, M. D., New Berlin, Ill.; University of Louisville, Ky., 1887; aged 63; died at his home, April 4, from nephritis.

DAVID DUNCAN, M. D., Chicago; Hahnemann Medical College, 1887; aged 68; died at his home, May 3, from heart disease.

GEORGE M. BASSETT, Vandalia, Ill. (license, Illinois, years of practice, 1878); aged 66; died at his home, April 14, from bronchopneumonia.

JOHN DEAL, M. D., Riverton, Ill.; Vanderbilt University, Nashville, Tenn., 1878; aged 67; a Fellow of the American Medical Association; died at his home, February 3.

ROBERT G. SCHALLER, M. D., Alton, Ill.; University of Munich, Bavaria, 1889; aged 69; a member of the Illinois State Medical Society; died suddenly at his home, May 12.

SAMUEL HENRY, M. D., Camp Point, Ill.; New York Medical College, New York City, 1853; aged 89; for sixty-two years a practitioner of Camp Point; died at his home, April 14.

JOHN ROSS HINDE, M. D., Los Angeles; Rush Medical College, 1902; aged 40; formerly a Fellow of the American Medical Association and a practitioner of Lewistown, Ill.; died in Los Angeles, about April 21.

FERDINAND ENGELBRECHTSON, M. D., Chicago; Dearborn Medical College, 1907; aged 53; a Fellow of the American Medical Association; associate surgeon for the Rock Island System; died at his home, April 23, from heart disease.

VICTOR A. BLES, M. D., Denver, Colo.; University of Colorado, School of Medicine, Boulder, 1895; a member of the medical staff of the Elgin State Hospital, on leave of absence account of poor health; died in Denver, Colo., May 13.

FRANK A. JORDAN, M. D., Freeport, Ill.; Rush Medical College, Chicago, 1864; aged 76; a veteran of the Civil War; a practitioner at Pecatonica, Ill., till his retirement in 1911; died at the home of his daughter in Freeport, Ill., May 15, of paralysis.

JOHN A. BARR, M. D., Fountain Green, Ill.; College of Physicians and Surgeons, Keokuk, Ia., 1875; Jefferson Medical College, 1877; aged 68; coroner of

Hancock county, Illinois, for two terms; died at his home, April 20, from tuberculosis.

EARL HENRY TREZONA, M. D., Gibson City, Ill.; Hahnemann Medical College, Chicago, 1911; aged 29; while driving over a grade crossing of the Wabash Railroad at Garber, Ill., in his automobile, April 30, was struck by a train and instantly killed.

BUEL SMITH BIGELOW, M. D., Chicago; University of Vermont, Burlington, 1863; aged 76; died in the Henrotin Memorial Hospital, Chicago, April 24, from cancer of the cecum, for the relief of which an operation had been performed a few days before.

N. NOBLE VANCE, M. D., Bement, Ill.; Medical College of Ohio, Cincinnati, 1868; aged 71; for many years a practitioner of Bement; a veteran of the Civil War; died at his home in that city about May 10, following four years disability from cerebral hemorrhage.

JOSEPH STUDER, M. D., Peoria, Ill.; University of Basel, Switzerland, 1853; aged 87; one of the founders of St. Francis' Hospital, Peoria, in 1876, and a member of the staff for many years; who moved to California in 1910; died at his home in Los Angeles, April 7.

ELBERT WING, M. D., Los Angeles, Cal.; Northwestern University Medical School, Chicago, 1882; for more than twenty years a practitioner in Chicago until his removal to Los Angeles about ten years ago; vice-president of the Sewell-Clapp Envelope Company; died in Los Angeles, May 8.

ALEXANDER H. HEPBURN, M. D., Chicago; Northwestern University Medical School, 1899; aged 41; a member of the Illinois State Medical Society and a veteran of the war with Spain in which he served as a member of the First Illinois Cavalry, U. S. V.; died suddenly, May 9, from diphtheria.

GEORGE RUTLEDGE COWAN, M. D., Granite City, Ill.; Washington University, St. Louis, 1884; aged 59; a Fellow of the American Medical Association and a well known practitioner of Girard, where he practiced until 1902, Joliet and Granite City; died at his home in the latter city, April 2, from arterio-sclerosis.

FRANK LLOYD BRONSON, M. D., Las Vegas, N. M.; Northwestern University Medical School, Chicago, 1908; aged 32; a member of the Illinois State Medical Society and formerly a pediatricist of Streator, Ill.; who moved to New Mexico on account of his health a few months ago; died at his home in Las Vegas, April 6.

WILLIAM JACKSON SEELY, Red Bud, Ill. (license, years of practice, Illinois, 1887); aged 83; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; a practitioner of Randolph county, Illinois, for fifty-three years; died at the home of his daughter in Realitas, Tex., March 12.

PAUL DUNCAN McMILLAN, M. D., Chicago; Washington University, 1905; aged 38; a member of the medical staff of Cook County Infirmary, Oak Forest, Ill.; who was operated on for removal of the spleen

a year ago, on account of Banti's disease; died in the Cook County Infirmary, May 4, from intestinal hemorrhage.

ALVAN FELCH BUCKHAM, M. D., Warren, Ill.; Medical School of Maine, Brunswick, 1864; aged 78; formerly a Fellow of the American Medical Association; assistant surgeon of the Second Massachusetts Volunteer Cavalry during the Civil War; said to have been the oldest practitioner of Jo Daviess county; died at his home, May 4.

WILLIAM H. SPARLING, M. D., Moweaqua, Ill.; Detroit College of Medicine and Surgery, 1872; aged 66; a Fellow of the American Medical Association; formerly president of the Central Illinois District Medical Society; local surgeon to the Illinois Central system; member of the National Association of Railway Surgeons; died at his home, April 3.

LEWIS D. DUNN, M. D., Moline, Ill.; Rush Medical College, 1857; aged 81; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years surgeon of the local ship's crew of the Illinois Naval Militia, with service during the Spanish-American War; for forty years local surgeon of the Rock Island System; formerly president of the Illinois State Board of Health; president of the Moline Library Board for many years and for eight years a member of the common council of Moline; died at his home, April 25, from cerebral hemorrhage.

NEW AND NON-OFFICIAL REMEDIES.

During May the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

Hyson, Westcott & Co., Enteric Coated Glycotaura Tablets.

H. C. Merker Co., Petroagar and Petrobran.

Monsanto Chemical Works, Phenolphthalein-Monsanto.

Standard Chemical Co., Standard Radium Solution for Drinking (1 Microgram Ra).

Mead's Dry Malt Soup Stock.—A mixture containing desiccated maltose and desiccated dextrin (about equal parts), 47 per cent., wheat flour 47 per cent., potassium carbonate 1 per cent. and moisture 5 per cent. Mead Johnson & Co., Jersey City, N. J. (Jour. A. M. A., May 20, 1916, p. 1623).

Phenolphthalein-Monsanto.—A non-proprietary preparation of phenolphthalein admitted to New and Non-official Remedies (Jour. A. M. A., May 20, 1916, p. 1623).

Book Notices

A MANUAL OF GYNAECOLOGY AND PELVIC SURGERY FOR STUDENTS AND PRACTITIONERS. By Roland E. Skeel, A. M., M. S., M. D. Associate Clinical Professor of Gynaecology, Medical School of Western Reserve University; Visiting Surgeon and Gynaecologist to St. Luke's Hospital, Cleveland; Fellow of American Association of Obstetricians and Gynaecologists; Fellow of American College of Surgeons. With two

hundred and eighty-nine illustrations. Philadelphia. P. Blakiston's Son & Co., 1012 Walnut street. \$3.00 net.

This volume by Skeel is intended as a working hand book of Gynaecology. It contains six hundred and eighty pages of text and two hundred and eighty-nine illustrations, and is replete with references. These references will be of value to the specialist or to the practitioner who wishes to thoroughly cover the literature. The author deals particularly with diagnosis and treatment. The work is concise, but covers a large field. It will be particularly useful to the student.

THE MORTALITY FROM CANCER THROUGHOUT THE WORLD. By Frederick L. Hoffman, LL. D., F. S. S., F. A. S. A.; Statistician the Prudential Insurance Company of America; Chairman Committee on Statistics, American Society for the Control of Cancer; Member American Association for Cancer Research; Associate Fellow American Medical Association; Associate Member American Academy of Medicine, etc., etc. The Prudential Press, Newark, New Jersey, 1915.

This volume of statistics from the Prudential Insurance Company compiled by Dr. Frederick L. Hoffman is the most extensive and comprehensive compilation of statistics on cancer we have seen. The Prudential and Dr. Hoffman are to be commended for placing this vast amount of data before the profession. The volume contains 826 pages, and gives cancer statistics from all the large insurance companies, and from all parts of the world, with observations from competent observers. Every physician or surgeon who is treating cancers should look over these statistics.

ELEMENTARY BACTERIOLOGY AND PROTOZOLOGY. For the Use of Nurses. By Herbert Fox, M. D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Second Edition, Revised and Enlarged. 12mo, 251 pages, with 68 engravings and 5 colored plates. Cloth, \$1.75, net. Lea & Febiger, Philadelphia and New York, 1916.

This work was designed as an elementary text-book of Bacteriology and Protozoology for nurses. Without being technical, it gives a good idea of the nature of micro-organisms, and then discusses with more emphasis the ways in which bacteria pass from one individual to another, how they enter the body and act when once within, and their manner of exit. Such general information concerning the character of the disease process has been included as seemed necessary to clarify the nature of microbe action. In other words, the author has endeavored to show in the simplest manner how bacteria produce disease.

In the second edition much has been added concerning general disinfection, the transmission of infection, especially in regard to those diseases spread by insects, and the peculiar phenomena of hypersusceptibility, a subject which becomes wider in its significance as we learn more about it.

GUNSHOT ROENTGENOGRAMS—A collection of Roentgenograms taken in Constantinople during the Turkish-Balkan War, 1912-1913, illustrating Some Gunshot Wounds in the Turkish Army. By Clyde S. Ford,

Major, Medical Corps. War Department: Office of the Surgeon General. Bulletin No. 9, October, 1915. Published by authority of the Act of Congress approved March 3, 1915, and with the approval of the Secretary of War, for the information of Medical Officers. United States Army Medical Department. Washington Government Printing Office. 1916.

A very interesting collection of Roentgenograms, and should be of especial value to those practicing Military Surgery.

THE OFFICIAL AUTOMOBILE BLUE BOOK—Touring Information for the Year, 1916. Vol 1, New York State and Canada; Vol. 2, New England and Eastern Canada; Vol. 3, Pennsylvania, New Jersey and the South; Vol. 4, The Middle West; Vol. 5, Mississippi River to Pacific Coast; Vol. 6, The South; Vol. 7, Pacific Coast States. Price, \$2.50 per volume. Published with the exclusive official endorsement of the American Automobile Association by the Automobile Blue Book Publishing Co., Chicago, Mallery Bldg.; New York City, 243 West 39th street. Copyrighted, 1915, by the Automobile Blue Book Publishing Company.

An authoritative route guide is a part of the necessary equipment of every automobile. Doctors are all touring to a greater or less degree. Everyone knows where he wants to go, but does not know the routes, the kind of roads, distances, what to avoid, etc., and for all this the Automobile Blue Book is indispensable. Each of the volumes covers a particular section of the country, and gives much data necessary to the tourist. These data include maps and information about roads, distances, hotels, garages, etc. The volumes are neatly bound, limp and of convenient size. The Good Roads Propaganda has added many miles of new roads each year, and the 1916 edition of the Blue Book describes these new routes to date.

A TEXT-BOOK OF FRACTURE AND DISLOCATIONS, WITH SPECIAL REFERENCE TO THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By Kellogg Speed, S. B., M. D., F. A. C. S., Associate in Surgery, Northwestern University Medical School; Associate Surgeon, Mercy Hospital; Attending Surgeon, Cook County and Provident Hospitals, Chicago, Ill. Octavo, 888 pages, with 656 engravings. Cloth, \$6.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

This work of Dr. Speed is a distinct addition to medical literature. A very large number of fractures are dealt with. Illustrations are numerous and are largely tracings from Roentgenograms. This gives an accurate illustration and has the advantage of distinctness. The author has classified fractures under their several anatomical divisions. Special emphasis is given to pathology, diagnosis and treatment. The work is designed to be of benefit to the general practitioner, and we recommend it to the profession.

THE MEDICAL CLINICS OF CHICAGO. Volume I, Number VI (May, 1916). Octavo of 229 pages, 22 illustrations. Philadelphia and London. W. B. Saunders Company, 1916. Published Bi-Monthly. Price per year: Paper, \$8.00; Cloth, \$12.00.

This number (May, 1916) of the Medical Clinics is if anything more interesting than its predecessors, and will add popularity to the publication. The sub-

jects studied this month are those which the doctor sees frequently in his routine work, but frequently causes him trouble in diagnosis or treatment.

The Clinicians for this number are, Isaac A. Abt, M. D.; Joseph C. Friedman, M. D.; Walter W. Ham-burger, M. D.; Ralph C. Hamill, M. D.; Charles L. Mix, M. D.; Robert B. Preble, M. D.; Frederick Tice, M. D.; Richard J. Tivnen, M. D.; Charles Spencer Williamson, M. D., and Joseph Zeisler, M. D.

BLOOD-PRESSURE: ITS CLINICAL APPLICATIONS. Second Edition, Revised and Enlarged. By George W. Morris, A. B., M. D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia. Octavo, 424 pages, with 102 engravings and 1 colored plate. Cloth, \$3.00, net. Lea & Febiger, Publishers, Philadelphia and New York. 1916.

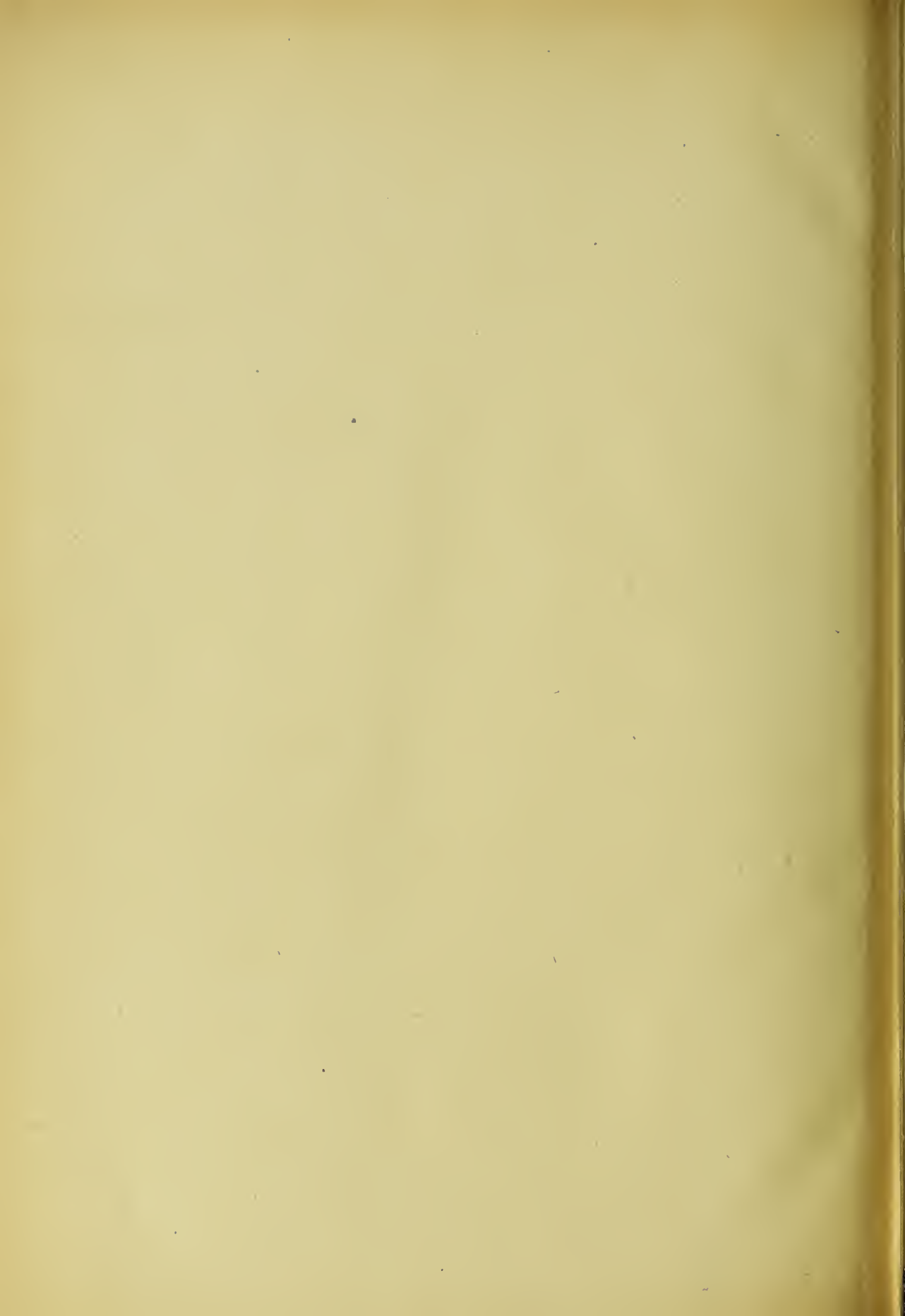
The importance of this topic is well shown by the issuance of a second edition in so soon a time. The subject is handled in this revision in the same way as in the first edition, which was reviewed at the time in this column. Much new matter has been added, which was necessitated by the large amount of literature on blood-pressure since the first edition. We believe the second edition will further the popularity made by the first edition.

GYNECOLOGY. By William P. Graves, M. D., F. A. C. S., Professor of Gynecology at Harvard Medical School. Octavo volume of 770 pages, with 424 original illustrations, 66 of them in colors. Philadelphia and London. W. B. Saunders Company. 1916. Cloth, \$7.00, net; Half Morocco, \$8.50, net.

This work is a welcome edition to the numerous text-books and reference works in existence. It is a combination text and reference book, making it valuable for both student and practitioner. It is conveniently divided into three parts. Part one is a thorough exposition on the physiology of the pelvic organs, and a rather new, but important topic, the relationship of gynecology to the general organism. Part two covers the diseases of the pelvic organs, thoroughly, but not too extensively. In this section recourse has been made frequently to pictures, especially those showing microscopic detail with text underneath, making it an eminently satisfactory method of presentation. Part three has to do with the technical side of gynecologic surgery. No attempt is made to present a large number of surgical operations, but only those which the author has found from personal experience, as he states, to be best suited to the condition at hand.

All in all the book shows the thorough understanding of the subject by the author, and should find a ready place as an authoritative text and reference. On account of the character of the illustrations, which are almost all original and excellent, rather heavy paper is required, which makes the volume somewhat heavy and large. The mechanical features of the book are all that can be desired. It is a work that can well find a place in the students' and practitioners' library.





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